

RESEARCH

Criterion VI: The school shall pursue an active research program, consistent with its mission, through which its faculty and students contribute to the knowledge base of the public health disciplines, including research directed at improving the practice of public health.

VI.1. A description of the school's research activities, including policies, procedures, and practices which support research and scholarly activities.

The primary research and scholarship goal of MEZCOPH is to foster excellence in public health research with an emphasis on diverse populations and the Southwest.

The position of Associate Dean for Research, and the Office of Research, were created in July 2002 to support the research mission and goals of the College. Also created was a Research Advisory Committee (RAC) with representation from each of the three divisions of MEZCOPH, faculty outside of our college at the University of Arizona, graduate students and community representatives.

The first CEPH accreditation visit of the college had a significant impact on its research policies, objectives and practice. In the initial self-study, MEZCOPH research objectives included a mixture directed at infrastructure support and outcomes. Based on the CEPH recommendations, the objectives now focus on outcomes. In addition, the RAC decided to expand the objectives pertaining to student involvement by including an objective on student participation in extramurally funded grants and contracts. During the past three years, MEZCOPH has worked to improve data collection systems so that progress can be monitored annually, if not more frequently.

As evident from MEZCOPH's current funding (detailed in section VI.3), the college's portfolio is diverse, ranging from bench science to community-based research. Funding is obtained from a wide variety of sources, including federal agencies such as NIH, CDC, HRSA, SAMHSA, to national and local foundations. Equally impressive are the wide-ranging collaborations within and among a variety of academic institutions, state and local health departments, and community agencies locally, nationally and internationally. As shown below, a considerable effort is made to address issues of health disparities with a focus on the underserved populations of the Southwest. MEZCOPH also strives to involve students in both the conduct of the projects as well as publications resulting from them.

The major research and scholarship objectives are shown below.

Research and Scholarship Objectives:

Objective 1: To increase by 3 percent per year the amount of grant and contract funding at MEZCOPH.

Objective 2: At least 40% of the funding focuses on health disparities, diverse populations (Hispanics, American Indians, and rural under-served) and the Southwest (Arizona, New Mexico, Colorado, and Texas).

Objective 3: Faculty, on average, will publish 2 articles per year in peer-reviewed publications.

Objective 4: Annually, at least 20% of extramurally funded projects will involve one or more student participants.

Objective 5: Annually, at least 20% of publications (articles, books and monographs) will include one or more student authors.

Procedures

General Operations: Research activity can be initiated in a number of ways:

- a) individual faculty members or groups of faculty members initiate research ideas based on previous research experience or emerging areas of interest;
- b) requests for proposals from federal or state agencies and direct solicitations to various faculty members or divisions from industry or governmental agencies frequently result in research activity; and
- c) interactions between divisions and with local health agencies and other research and service organizations often provide additional stimulus for research ideas. Currently, through the Community of Science database, research funding information is available to individual faculty at the University of Arizona.

In addition, the Associate Dean for Research posts new funding opportunities on the faculty listserv for MEZCOPH as well as sending information to individual faculty based on their interest areas. There is already a system within the University of Arizona Health Sciences Colleges where research centers bring together interdisciplinary faculty members to generate research ideas. Students also bring research ideas to the faculty as potential internship, thesis and dissertation topics.

Further communications about research opportunities also are in place. Division directors and the Dean advise faculty members about research opportunities. They encourage interdepartmental projects by assembling *ad hoc* teams to address multidisciplinary research problems, such as minority health. The Dean

also may encourage and support new research initiatives through the provision of seed monies and/or the creation of new organizational structures.

The formulation of research ideas is generally followed by a period of planning and development ultimately resulting in a request for funding. In public health, possibly more than in other units of universities, research questions tend to be broad and require a multi-disciplinary team approach. Therefore, it is quite common for groups of individuals, faculty and students from one or more divisions and from multiple colleges to be involved in the initiation and development of various research programs.

The Research Advisory Council (see TABLE III.1.B-1) has telephone conferences every one to two months to review progress, and to advise on policy to foster better communication and practice. The RAC also makes recommendations for the annual college award for research, as well as nominations for university wide research recognition.

Policies

The University of Arizona (UA) complies with Federal and State research policies. The UA also has established a number of written policies that apply to research (see <http://w3.arizona.edu/~policy/research.shtml>). There is a Handbook for Principal Investigators. These written policies include those on conflict of interest and commitment; technology transfer; ethics; regulatory compliance; direct and indirect costs of sponsored agreements; intellectual property rights; and radiation and lab worker training. University policies also include: computing, faculty governance, financial policies, human resources, and State and Federal relations. The Financial policies cover: financial records systems; payroll; property management; procurement and contracting services; and policies for following UA business practices guidelines.

Most importantly, there are strict written policies to protect human subjects and animals used in research (see http://www.irb.arizona.edu/manual_procedures.html). The Research Office serves as the conduit for human subjects reviews emanating from MEZCOPH appointed personnel and student field-projects prior to their being sent to the University of Arizona Human Subjects Office.

MEZCOPH has additional written policies that include a policy against accepting tobacco money, and its own policy on funding its Office of Information Technology (including the cost per operations and maintenance of the network and individual computers). Specific usage policies and guidelines for computer and network use include, for each person using college computing and network resources: 1) following Student Code of Conduct (<http://w3.arizona.edu/~studpubs/policies/studcofc.htm>); Classified Staff Personnel Policy Manual (<http://hr2.hr.arizona.edu/ppmindex.htm>) or University Handbook for Appointed Personnel (<http://w3.arizona.edu/~uhap/>) policies; 2) abiding by security measures implemented to protect information, data, and systems; 3) clearly and accurately identifying oneself in electronic

communications; 4) using computer and network resources efficiently; 5) ensuring that others are free from harassment or intimidation; 6) ensuring that the use of computer resources and networks is academically oriented; 7) respecting copyright and intellectual-property rights; 8) respecting university property; and 9) respecting and adhering to other departmental/college/internet service provider's acceptable use of policies.

There also are space policies in the MEZCOPH at the UA. New space for research projects (whether on or off-campus) requires MEZCOPH approval during the proposal routing process. The Proposal Routing Sheet, which includes a UA space request application, requires signatures from the Division Director, the MEZCOPH Office of Financial Affairs and Physical Resources and the Dean. A copy of each grant and contract application face page, budget request, and abstract is maintained by the Research Office and the Dean.

At the UA, the MEZCOPH generates indirect cost revenues based on the federally negotiated indirect cost rates for instruction, research and public service ([/vpr2.admin.Arizona.edu/sps/cas/direct_indirect_policy.html](http://vpr2.admin.Arizona.edu/sps/cas/direct_indirect_policy.html)). These are described in Section IV.1.

Practices

Fiscal management of grants, contracts and cooperative agreements is the responsibility of the principal investigator and the College's business office staff, with oversight provided by the Dean. Each principal investigator within the MEZCOPH is provided with a monthly financial statement regarding his/her project(s) from the Business Office for review. These statements, from the University of Arizona's Financial Records System, are the official records of the financial transactions on a project. The statements also are reviewed at the administrative level by the University of Arizona's Sponsored Projects Office to assure compliance with university policies and procedures, the sponsoring agency's policies and procedures, and with generally accepted accounting principles.

All mentoring, including research mentoring, takes place through various mechanisms. Faculty below the rank of Professor are required to have a mentor. The selection is usually made by the faculty member in conjunction with his or her division director. The mentor is expected to meet regularly with the faculty member and to complete an assessment of progress in the faculty member's annual performance review (APR). In addition, the MEZCOPH Research Office, often in collaboration with the Research Offices from the other colleges at the UA, offers workshops and symposium for faculty and students. Workshops range from all-day updates on HIPAA regulations, to mini-NIH study section mock reviews, to training on the use of the Community of Science database for personalized funding opportunity notification.

Two years ago, a MEZCOPH policy was instituted to require all MPH students to obtain human subjects certification and require that all MPH internship proposals undergo human subjects review. Symposia on the requirements and procedures were presented by the Associate Dean for Research to faculty and academic professionals at meetings of each of the college divisions, to the MPH students during a four-hour internship orientation conference, and at the epidemiology seminar that is attended by all MS and PhD epidemiology students.

VI.2. A description of current community based research activities and/or those undertaken in collaboration with health agencies and community-based organizations. Formal research agreements with such agencies should be identified.

Involving partners outside the UA and tapping the expertise found in state and county health departments, family planning agencies and other community-based organizations is crucial to the ultimate success of many of the MEZCOPH research projects. See APPENDIX VI.2-1 for a detailed list of extramural awards to the college over the last three calendar years, 2002, 2003, and 2004 with specific notations regarding community-based projects. A list of those agencies with whom there are formal agreements will be available onsite.

In many cases it is difficult to classify projects as purely research or purely service. Often the same project involves components of both. Even those that are predominantly research, often try to do some community capacity building so that the community will continue to benefit once the research funding ceases. MEZCOPH faculty has a long history of community-based applied research with the underserved populations documented in VI.3 and in the Service section (VII).

The Border Health Program is but one example that illustrates MEZCOPH community involvement and involves a set of interrelated grants and contracts whose purpose is to: 1) advance health in border communities; 2) reduce ethnic disparities in health; 3) promote the Promotora (lay health worker) model for health promotion; 4) study chronic disease interventions with border partners; and 5) interrelate these with community development, including systems and policy changes, for Health Promotion/Disease Prevention. Border Health Strategic Initiative was a community-oriented approach to diabetes prevention and control targeting Mexican American and American Indian populations in two Arizona-Mexico border counties. Half of the funding from the CDC went directly to the community partners that included community health centers, Area Health Education Offices, County Cooperative Extension, and a variety of social services agencies (<http://www.borderhealthsi.org/>). The January 2005 issue of the CDC peer-reviewed electronic journal, *Preventing Chronic Disease*, was mostly devoted to describing all of the components of the Border Health Strategic Initiative (<http://www.cdc.gov/pcd/>).

Funding in support of our community comes from a variety of sources including NIH (EXPORT – Health Equality Center), the CDC (Southwest Center for

Community Health Promotion – a Prevention Research Center and STEPS to a HealthierUS via a subcontract from the Arizona Department of Health Services), HRSA (Border Vision Fronteriza, CAPAZ, Rural Health Outreach Grant), and EPA NIEHS (border environmental health). Of note is the fact that MEZCOPH has funding for both an EXPORT grant and a Prevention Research Center, a tribute to the MEZCOPH's success in addressing health disparities.

Community-University Partnerships and Community Involvement

As shown throughout this self-study, the MEZCOPH faculty, staff and students work as interdisciplinary teams with communities and our partners: community-based organizations, community health centers, nongovernmental organizations, state and local health departments, and federal agencies. This has led to great involvement in promotion/prevention/intervention research projects, which go well beyond the funded research (and paid/unpaid time commitment). It includes involvement in public health and other issues promoted by the partners and their communities, with additional technical assistance provided, and promotion of long-term sustainable partnerships and programs. It also consists of in-depth participation at state, national and bi-national levels; promoting such participation and programs; involvement with efforts with others (funded or not) in such endeavors with the agencies (and independent of them); participation with the Arizona-Sonora Task Forces & Commissions (etc.); and education of legislators and decision-makers at all levels to demonstrate the benefit of such programs.

VI.3. A list of current research activity, including amount and source of funds, over the last three years (2002-2004).

Research productivity is central to the mission of the MEZCOPH as well as to its financial viability. All faculty members are expected to fund their research activities, including student support, and they have been extremely successful in this regard.

The faculty and students at the MEZCOPH are actively involved in a large variety of research efforts. The College has a long and well-established track record for health disparities research with a focus on Hispanic/border health and American Indian health. Dean Swanson is the PI of an EXPORT grant for a health disparities outreach, research, and training center to focus on Hispanic and American Indian health disparities. It involves collaboration between MEZCOPH, the Mexican-American Studies Center, the Native American Research Center and the graduate college of the University of Arizona. This five-year \$6 million dollar grant from NIH led to the creation of a Health Equality Center. Another important source for research and outreach is The Southwest Center for Community Health Promotion (SWCCHP), a CDC-designated Prevention Research Center, that focuses on these high-risk populations. It was recently renewed for another five years of funding. Furthermore, there are numerous ongoing research projects in all four of the Arizona counties that border Mexico. MEZCOPH

investigators were instrumental in helping the State of Arizona Department of Health Services become one of four states to be awarded a STEPS to a HealthierUS grant. The application built upon the successes along the border of the SWCCHP and the Border Health ¡SI! Project.

Another important resource is the State of Arizona (and federal)-designated Rural Health Office. It is a unit within MEZCOPH. It is supported both by state dollars and by various grants and contracts. Given the demographics of Arizona and the Southwest, it is not surprising that much of MEZCOPH’s research focuses upon American Indians, Hispanics, and other populations where health disparities are prevalent.

To provide a sense of the content of these projects, they have been classified into the following non-mutually exclusive categories:

- Hispanic & Border Health
- Native American Health
- Environmental and Occupational Health
- Maternal/Women’s, Family and Child Health
- Chronic Disease Prevention and Control (Diabetes and CVD)
- Tobacco & Substance Abuse, and
- Cancer Prevention and Control

Much cancer prevention and control research is performed in conjunction with the Arizona Cancer Center (AZCC), an NCI-designated cancer research center.

MEZCOPH’s funding portfolio is displayed in three inter-related tables. TABLE VI.3-1 shows the annual funding by total amount by major funding source and overall. This table and TABLE VI.3-2 are based on fiscal-year data derived from actual expenditures that are institutionally reported for each fiscal year.

The major sources of funding are: National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC), Health Resource Service Administration (HRSA), other federal agencies (e.g., SAMHSA) and Arizona Department of Health Services (ADHS) with much of the money coming from the state tobacco tax. Other is used to designate those grants that do not fit into one of the above categories.

TABLE VI.3-1 MEZCOPH FUNDING AMOUNT BY SOURCE AND BY FISCAL YEAR

FUNDING SOURCE	Total dollars for July 1, 2002- June 30, 2003	Total dollars for July 1, 2003-June 30, 2004	Total dollars for July 1, 2004-June 30, 2005
NIH	2,999,647	4,281,978	4,979,017

CDC	1,974,174	1,892,144	1,321,306
HRSA	2,689,285	2,700,534	2,668,309
ADHS	2,550,035	2,278,650	923,633
OTHER FEDERAL & SUB FEDERAL	1,315,981	1,935,151	2,035,456
OTHER	813,768	667,849	618,487
TOTAL	12,342,889	13,756,306	12,546,208
PERCENT CHANGE FROM PRIOR FISCAL YEAR	0%	+11%	-10%

As noted in Objective 1 above, our target is to increase funding by 3% annually.

As shown in TABLE V1.3-1, funding varies from year to year according to the funding source. Of note, is the decrease in funding from the Arizona Department of Health Services (ADHS). This is in large part a result of the decrease in tobacco tax money available for subcontract from the Tobacco Education and Prevention Program administered through ADHS. Given the variability in funding from year to year and the transition of many faculty to tenure-track positions, the funding target should be re-evaluated and reset within the next two years.

TABLE VI.3-2 displays the annual extramural grant and contract funding based on actual expenditures for each of the three divisions of MEZCOPH namely: Epidemiology and Biostatistics, Health Promotion Sciences, and Environmental and Community Health. Also, displayed in Table VI.3-2 are the indirect costs. A number of faculty in the Division of Epidemiology and Biostatistics are involved in research through the Arizona Cancer Center (AZCC) and some or all of those indirects go to the AZCC. The data source for the information in Tables VI.3-1, -2 and Appendix VI.2-1 is the MEZCOPH Office of Financial Affairs and Physical Resources.

TABLE V1.3-2 INDIRECT AND DIRECT FUNDING AMOUNTS BY DIVISION AND BY YEAR

(Please note that indirects are included in the total for that fiscal year.)

Division	Indirect dollars for July 1, 2002-June 30, 2003	Total dollars for July 1, 2002-June 30, 2003	Indirect dollars for July 1, 2003-June 30, 2004	Total dollars for July 1, 2003-June 30, 2004	Indirect dollars for July 1, 2004-June 30, 2005	Total dollars for July 1, 2004-June30, 2005

Epidemiology & Biostatistics	283,761	1,997,180	440,994	3,150,091	487,139	3,695,485
Health Promotion Sciences	1,023,129	7,152,890	1,143,189	7,749,957	812,008	5,564,646
Environmental & Community Health	460,244	3,192,820	425,551	2,856,258	401,102	3,286,077
Totals		12,342,890		13,756,306		12,546,208

Sources of research funding have broadened in recent years as competition for and availability of funds from usual sources have tightened. The federal government is by far the largest source of research support for MEZCOPH. Research support also comes from the state, foundations and industry. The trend of increased funding and diversity of funding sources is expected to continue. The decrease in ADHS funding is most noted in the total funding for the Division of Health Promotion Sciences.

APPENDIX VI.2-1 presents awards by faculty member, division, funding source and project area.

Interdisciplinary Research

The MEZCOPH has a number of ongoing studies that involve investigators from more than one division, college or university. The Health Equality Center (NIH funded EXPORT grant) focuses on the Hispanic populations of southern Tucson and the Hardrock community on the Navajo Reservation. It involves multidisciplinary investigators from MEZCOPH as well as the Mexican-American Studies and Research Center, and the Native American Research Center.

The MEZCOPH also works closely with a number of internal and external research centers, which provide the organizational and administrative framework for interdisciplinary research and training. Centers can provide salary support and start-up funding and provide mentoring for a specific research area.

VI.4. Identification of measures by which the school may evaluate the success of its research activities, along with data regarding the school's performance against those measures over the last three years.

Each of the objectives detailed previously is measured to evaluate the success of our research activities. These measures include the amount of grant and contract funding (objective 1 – results shown in Table VI.3-1), the extent to which that funding reflects the mission of the college (objective 2 – results shown in Appendix VI.3-1), the average number of faculty peer-reviewed publications

(objective 3), and student involvement in research (objectives 4 and 5). Information concerning objectives 3, 4 and 5 is shown below.

Number of Publications

TABLE VI.4-1 depicts the number of publications for the years 2002-2004. A bibliographic list of these publications will be available onsite. Even though faculty full-time equivalents (FTE) at the University of Arizona have decreased somewhat from the level in 2002, productivity in all categories has increased. In 2004, we attained our goal that faculty, on average, will publish 2 peer-reviewed publications. With the transition of a number of faculty to tenure track status, we expect that this level of productivity will be maintained if not exceeded.

Table VI.4-1: Publications by Type and Year for the MEZCOPH Faculty

	2002	2003	2004
<i>FTE Faculty</i>	35.98	38.50	35.01
Books	1	4	6
Chapters/Reviews	13	18	26
Peer-Reviewed Journal Articles	72	77	86
Mean # of articles per faculty FTE	2.0	2.0	2.5

VI.5. A description of student involvement in research.

In the MEZCOPH, research usually engages students with faculty members in the process of discovering new knowledge, ideas and approaches to improve public health. The level of each student's involvement in research varies according to his or her degree program and the duration of the program. Doctoral programs require a research-oriented dissertation, the focus of which is usually generated through involvement in faculty research, primarily in epidemiology.

Faculty research interests contribute to the overall curriculum of each division within the College. All divisions offer seminars in which faculty members present their research activities for discussion. Students are encouraged to participate. Faculty research also is an important source of new information to keep courses

up to date. TABLE VI.5-1 shows two indicators of graduate student involvement in projects over the past three years. The first is the percentage of publications (articles, books and monographs) involving one or more student authors. These data come from faculty citations from their annual performance reviews (APR). The Research Advisory Committee set as a goal that 20% of publications should include one or more student authors. We are making continual progress toward that goal.

At the suggestion of the Research Advisory Committee (RAC), the percentage of extramurally funded grants and contracts that involves one or more students was adopted as a second measure of student involvement in funded projects. The source for this information is the APR. The PI of each funded project must complete the required field indicating the number of students involved in this project. This information had not been collected prior to 2004. In the absence of historical standards of performance, the RAC set the bar of at least 20% of the projects involving one or more students. Based on the 2004 data, this estimate was too low and will be revised once we have the 2005 data.

Table VI.5-1: Student Involvement in Research

	2002	2003	2004
Percentage of Publications with Student Authorships	5 of 73 = 7%	18 of 104 = 18%	21 of 118 = 18%
Percentage of Funded Projects Involving Student Participation	Not available	Not available	47 of 86 projects = 55%

VI.6. Assessment of the extent to which this criterion is met.

This criterion is met.

Strengths

Since the first accreditation review, we have continued to make progress by refining our objectives and improving our data collection system for monitoring progress. MEZCOPH continuously extends its research mission through faculty recruitment, expanded student and community involvement, and through additional collaborations across the University of Arizona campus and with colleagues at other universities across the nation and globally.

Weaknesses

The research office and position of Associate Dean for Research has yet to establish functions that adequately address MEZCOPH needs. The position of Associate Dean for Research is currently open.

Recommendations

Dean Swanson has established a task force to determine the appropriate functions and responsibilities for both the position of Associate Dean for Research and the research office. The position will be re-defined and then filled on the basis of recommendations from this task force.