

Testimony of  
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before the  
Committee on Finance  
of the  
United States Senate  
The Role of Higher Education Financing in Strengthening U.S. Competitiveness  
in a Global Economy  
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Chairman Grassley, Senator Baucus, and Members of the Committee on Finance, thank you for the opportunity to provide testimony today. The Title of today's hearing, "The Role of Higher Education Financing in Strengthening U.S. Competitiveness in a Global Economy" is one of great importance. I will focus on a number of health education and graduate programs at The University of Montana because the graduates of these programs will have a large impact on the health status of our citizens. There is no doubt that a healthier population will translate into an enhanced ability by our citizens to be competitive in a global economy. Programs at the University of Montana and the School of Pharmacy and Allied Health Sciences have benefited a great deal from support from the Federal Government. This support has allowed my colleagues to not only expand programmatic size but to improve access as well. Or in other words, improved access leads to a healthier community, which is more competitive.

## **Montana**

Montana is a poor, rural state. According to the Bureau of Economic Analysis in 2002, Montana ranked 45<sup>th</sup> of the 50 states in per capita personal income. The median household money income in Montana was \$33,024 compared to \$41,994 nationally. Updated census data indicates that 14.6% of Montana's population lives in poverty (128,355 of 904,433). Poverty is high, especially among Montana's youth as 43.6% are classified as low income and uninsured (Catholic Campaign for Human Development, 12/16/2003). The reality on some of the reservations is even more dismal. There are over 2.4 million (0.9%) American Indians in the U.S. of whom sixty-four thousand (2.7%) live in Montana and account for the largest minority group (6.2%) in the state but less than 3% of students enrolled at the state universities. This poor representation is foreshadowed by a high school dropout rate twice that for non-Indian students and dismal ACT scores. A scarcity of health careers role models contributes to a severe pipeline problem. The small number of American Indian/Alaskan Natives (AI/AN) entering and graduating from professional programs has created a larger demand for AI/AN pharmacists than for any other ethnic group. In Montana, only 0.6% of pharmacists are AI/AN. Eighty-two percent of counties meet the Health Professional Shortage Area (HPSA) definition and 57% are Medically Underserved Areas.

## **The University of Montana**

The University of Montana (UM) is accredited by the Northwest Association of Schools and Colleges and consists of the College of Arts and Sciences and seven professional schools.

- Total number of UM students – 12,150
  - Undergraduate – 10,379
  - Graduate – 1771
  - Residents – 68%
  - Nonresidents – 32%

## **School of Pharmacy and Allied Health Sciences**

The School of Pharmacy and Allied Health Sciences consists of the professional disciplines of pharmacy, physical therapy, and social work.

- Pharmacy students - 232
- Physical therapy students - 82
- Social work students –
  - Masters in Social Work (MSW) – 50
  - Baccalaureate in Social Work - 175
- Graduate students – Biomedical and Pharmaceutical Sciences - 35

The School offers the following degree programs:

- Doctor of Pharmacy (Pharm.D.)
- Doctor of Physical Therapy (DPT)
- Baccalaureate in Social Work
- Masters in Social Work (MSW)
- Doctor of Philosophy (Ph.D.)
  - Pharmaceutical Sciences
  - Toxicology
  - Neurosciences

The University of Montana's total enrollment (12,150) includes 5,011 disadvantaged students and of the 232 students in the Doctor of Pharmacy Program, 91 are economically disadvantaged.

## **Federal Government Student Support**

The Federal Government has provided a good deal of support for the students either in the Doctor of Pharmacy Program or preparing to enter the Program. These initiatives include:

- Health Careers Opportunity Program (HCOP) – HHS (HRSA) has provided the School with support for approximately the last decade to recruit, train, and graduate American Indian and Alaska Native students in pharmacy. One hundred and eighty-nine students have been part of this program (1998-2004).
- Center of Excellence (COE) – HHS (HRSA) has provided the School with support for a three-year period with purposes to include increasing the number of minority

- faculty and students in pharmacy, improving health care delivery to minority populations through better professional preparation, and achieving cultural competence for all pharmacy graduates.
- Endowment Fund Program – HHS (HRSA-National Center on Minority Health and Health Disparities) has provided the School with support to increase the School’s capacity (via an endowment fund) to enhance minority recruitment and health disparities research in Montana.
  - Scholarships for disadvantaged students - For the academic year 2001-02, the pharmacy program received \$326,212 from HHS (Division of Student Assistance) to award as scholarships to disadvantaged students. For 2002-03, the pharmacy program received \$312,776; in 2003-04 the pharmacy program received \$351,484. For 2004-05 the pharmacy program received \$426,359. Students completing the HCOP summer enrichment program are given priority for this funding. The pharmacy program has awarded scholarships to disadvantaged students ranging from \$400 to \$6,500 from these funds.
  - Loans for disadvantaged students - From 1991 to 1995, the pharmacy program received a total of \$83,392 from HHS (Bureau of Health Professions) to award as loans to disadvantaged pharmacy students and the School program provided matching money of \$10,741. For 2003-04 the pharmacy program received an additional \$21,518. Today, with interest earned, approximately \$125,000 remains in circulation with about \$25,000 re-loaned each year. Another \$51,000, donated by the Burroughs Wellcome Drug Company, is available to award as short-term loans to students.
  - Community Health Center (Partnership Health Center in Missoula) –HHS provided Missoula County’s Community Health Center (known in Missoula as the Partnership Health Center) with support (the School was a subcontractor) to assist other Montana Community Health Centers with the implementation of pharmacy services. The School utilizes community health centers statewide as advanced practice sites for pharmacy students.

### **Successes from the Above Programs**

The School’s Office of Diversity Programs operates in part with funding from HRSA’s Health Careers Opportunity Program (HCOP) and their Centers of Excellence Program. The Diversity Program Office resides in the Office of the Dean for the School of Pharmacy.

The following table shows the increase in the number of applications received for the HCOP summer programs. This increase shows evidence of the success of the program.

**Table 1**  
**Summer Enrichment Program Applications**

Summer Program Dates	Applications Mailed (P1 & P2)	Applications Received (P1 & P2)	Applications Accepted (P1 & P2)
1998-1999	798	32	22
1999-2000	1,200	35	21
2000-2001	1,250	53	28
2001-2002	1,320	60	42
2002-2003	1,400	65	42
2003-2004	1,810	91	34
Totals	7,778	336	189

For the academic year 2003-04, there are 10 American Indians/Alaska Natives enrolled in the pharmacy program, one African-American and two Hispanic, and three Asians. One American Indian, one Native Hawaiian/Pacific Islander and one Asian student are currently enrolled in the Physical Therapy program.

Fourteen HCOP students have graduated from the School of Pharmacy and Allied Health Sciences with degrees in Pharmacy since 1998. At the present time one student is enrolled in the Pharm.D. /Ph.D. program and he is scheduled to graduate by 2008.

The professional program overall retention rate of minority students is 100%. This was accomplished in conjunction with the School's Health Career Opportunity Programs and the Office of Diversity Programs by providing over 250 hours of tutoring to disadvantaged students in the pre-professional program and other allied health science fields. All students participating in tutoring were required to meet with a tutor 2 –3 hours per week, schedule a meeting time with the coordinator to discuss success and failures, and meet with faculty members to evaluate their progress.

The School of Pharmacy implemented an Early Warning System for students who are having academic difficulty. After a student has performed poorly (grade of D or F) in their first exam, the professor asks the student to visit with them to discuss the nature of the difficulty. If a student receives a second poor score, the Assistant Dean for Student Affairs is notified. The Assistant Dean contacts the student to further help resolve the difficulty. Sometimes a student can improve with a simple change in his or her study habits. Other times, it may be necessary to refer that student to a campus resource. This system allows for early identification of students in academic difficulty and puts a plan in place to address the problem. If these attempts to improve academic performance fail and a student earns a grade of D or F in a required pharmacy course, an alternate course of study is designed specifically for that student. It may mean reducing the credit load to a more reasonable level even though the student would necessarily take longer than usual to complete the course of study.

The following table shows the American Indian student involvement in research projects.

**Table 2**

## UM Pharmacy Student Undergraduate AI/AN Research Projects

Year	Student	Faculty Mentor	Title
2002	Walter Gardipee	Howard Beall	Novel Indolequinone antitumor agents
2003	Brian Hall	Keith Parker	Gene Cloning and Expression
2003	Jamie Kennedy	Ann Cook	National Rural Bioethics Project.
2003-2004	Brian Hall	Keith Parker	Pharmacology of Cannabidiol at Serotonin Receptors

These projects resulted in the following:

Swann, E., Barraja, P., Oberlander, A.M., Gardipee, W. T., Hudnott, A. R., Beall, H.D. and Moody, C. J. Indolequinone antitumor agents: correlation between quinone structure and rate of metabolism by recombinant human NAD(P)H:quinone oxidoreductase. Part 2. *J. Med. Chem.* 44:3311-3319 (2001).

Fryatt, T., Pettersson, H. I., Gardipee, W. T., Bray, K. C., Green, S. J., Slawin, A. M. Z., Beall, H. D., Moody, C. J. Novel quinolinequinone antitumor agents: structure-metabolism studies with NAD(P)H:quinone oxidoreductase (NQO1). *Bioorg. Med. Chem.*, in press.

Beall, H. D., Oberlander A. M., Goroski D. T., Gardipee W. T., Swann E., Hudnott A. R., Barraja, P. and Moody C. J. Novel Indolequinone antitumor agents: effect of substituents at the indole-1- and indole-3-positions on substrate specificity for NAD(P)H:quinone oxidoreductase (DT-diaphorase). *Proc. Am. Assoc. Cancer Res.* 41:767 (2000).

Gardipee, W. T., Oberlander, A. M., Moody, C. J., and Beall, H. D. NAD(P)H:quinone oxidoreductase 1 (NQO1)-directed drug discovery: novel indolequinone antitumor agents. Pharmacy Student Research Conference - Western Region, Denver, CO, June 2001.

Hall, B., Christians, A., Halley, C., Parker, L., Russo, E., and Parker, K.K. "Pharmacology of Cannabidiol at Serotonin Receptors." *Proc. West. Pharmacol. Soc.* 47: 43 (M-24), 2004, at the 47<sup>th</sup> Annual Meeting of the Western Pharmacology Society, Honolulu, HI, January 26, 2004.

The Native American Center of Excellence Grant supports faculty efforts in undergraduate minority research by formalizing the Undergraduate Research Program (URP). The URP aims to involve more undergraduates in cutting-edge research projects prior to graduation. It has been remarkably successful over the past thirteen years. With the support of the Department of Biomedical and Pharmaceutical Sciences (BPS), the URP seeks to increase participation by minority students. The following criteria is used for student research selection and completion of research:

- Undergraduate researcher will arrange for laboratory experience with a full-time research faculty member
- BPS provide assurances of adequate space and resources; faculty mentor will provide infrastructure (work space, supplies, etc) and make a time commitment
- Student and faculty commitment will be for an entire semester; award renewals may be possible for an additional semester
- If undergraduate research student will be working with any hazard, the proper assurances must be filed and an appropriate training workshop completed in advance of the project
- Undergraduate researcher will complete a written report within 30 days of the completion of the research project
- Undergraduate researcher will prepare a professional presentation of the research for a statewide conference such as the Montana Academy of Science (MAS) or a national conference such as National Conference on Undergraduate Research (NCUR).

The COE Program Coordinator will take deliberate steps to inform and encourage AI/AN students to participate in the URP.

One American Indian student who graduated with the Pharm.D degree in 2003 has successfully completed a post-graduate Pharmacy residency program at Community Medical Center in Missoula, Montana.

A second student who will graduate with the Pharm.D degree in May of 2004 has been admitted to the Juris Doctor program at Creighton University in Omaha, Nebraska.

### **Federal Government Support (Faculty and Students – Research):**

The Federal Government has provided a good deal of support for the faculty (and indirectly to graduate students) in terms of research grants. The doubling of the budget of the National Institutes of Health has provided many additional opportunities for peer reviewed grant proposals to be funded. The programs, which have benefited Montana a great deal, include:

- COBRE Grants - The School has two Center of Biomedical Excellence Research grants from the National Institutes of Health (NIH) National Center for Research Resources (NCRR). This support provided the resources for the School to create two campus centers – the Center for Functional and Structural Neuroscience and the Center for Environmental Health Sciences.
- NSF EPSCoR Grants - The School administratively houses the National Science Foundation (NSF) Experimental Program to Stimulate Competitive Research.
- Building Grant (NCRR) – NCRR has awarded the School three million dollars towards a fourteen million dollar research addition to the present Skaggs Building.

The two NIH-NCRR Centers of Biomedical Research Excellence Grants have allowed the School and the University to accomplish the following:

- Recruit 11 new faculty for Pharmacy, Biological Sciences, Chemistry and Computer Sciences. Five more were recruited with NSF EPSCoR funding specifically for development of the School's Center for Environmental Health Sciences.

- Implement two new doctoral training programs (Toxicology and Neurosciences).
- Provide stipend support for 14 students in these two new programs, helping overall enrollment of doctoral students to reach 35 students.
- Encourage undergraduates to pursue science careers by offering numerous lab assistant positions.
- Stimulate interaction / collaboration with other institutions.
  - Provide grant support to collaborating faculty at Montana State University (MSU) and McLaughlin Research Institute (Great Falls, Montana).
  - Implement a joint doctoral program in neurosciences with MSU.
  - Drive the development of interactive- web based course instruction with MSU via Access Grid Nodes (distance education technology).
- Create new economic development opportunities.
  - Creation of a Molecular Medicine Lab at St. Patrick Hospital and Health Sciences Center (Missoula, Montana) to develop gene therapies for neurological diseases.
  - Foster continued development of Montana Neuroscience Institute and International Heart Institute of Montana (Missoula).
- Enhance the focus on health care issues relevant to Montana.
  - Arsenic accumulation in water supplies due to gold mining that may lead to enhanced cardiovascular risk.
  - Lead accumulation in attic dust in Butte, Montana and surrounding communities that may lead to hearing loss and other neurological problems in children.
  - Vermiculite/asbestos contamination in Libby, Montana that may lead to dramatically enhanced lung fibrosis and cancers.

Additionally, the COBRE and EPSCoR grants have been instrumental in enhancing the competitiveness of the faculty in terms of successful federal grant applications. The American Association of Colleges of Pharmacy (AACP) collects successful grant data from the Federal Government and using “Direct Costs per FTE Ph.D. Faculty Member”, the University of Montana’s pharmacy faculty rank 7<sup>th</sup> nationally, only behind the Universities of Washington, California-San Francisco, Kansas, Florida A & M, Michigan, and Arizona.

The above listed faculty success in obtaining federal competitive grants has materially enhanced the University’s and the School’s ability to recruit and retain high quality faculty. Additionally, success breeds success in that a higher quality graduate student will be attracted by these faculty and then our programs should be more competitive in terms of further extra mural support.

Finally, the federal support has been instrumental in assisting in securing private support for the University’s health educational programs as well. For example, The ALSAM Foundation and American Stores (now Albertsons) provided the School with over eight million dollars to build additional classrooms and research space. Once again, new laboratory space attracts high quality faculty who are better suited to secure extra mural funding necessary to attract better students and hopefully the cycle continues. As of today’s date, the School is in dire need of research space and the NCCR has provided the School with three million dollars towards a fourteen million dollar research building addition. The University has bonded for seven million dollars and is seeking private support for the remainder. Ground breaking on the research addition to the Skaggs Building is scheduled for March of 2005.

## **Federal Government Support (Rural Training):**

### ImProving Health Among Rural Montanans (IPHARM)

IPHARM is a mobile wellness-testing program serving the state of Montana and is operated by the School of Pharmacy and Allied Health Sciences. IPHARM provides the following tests:

- a. Bone density
- b. Cholesterol
- c. HbA1c (long-term blood glucose control)
- d. Spirometry (lung function test)
- e. Blood pressure

In late 2002, IPHARM received a grant from the Office for the Advancement of Telehealth (OAT). After hiring staff, securing test equipment, and developing policies and procedures, IPHARM began service in February 2003. Since beginning testing, IPHARM has served over 1900 clients in more than 40 sites in Montana and provided over 3000 tests.

The IPHARM mission is to provide wellness tests to Montanans who otherwise would not be tested. This includes those folks who cannot afford the tests or those geographically isolated. IPHARM works with partners to bring this testing program to their communities. Some of the partners with whom IPHARM has worked include:

- a. The Ennis Lion's Club
- b. The Montana Migrant Workers Program
- c. Montana Community Health Centers
- d. Blue Cross Blue Shield of Montana
- e. The United States Forest Service
- f. The Montana Diabetes Project

An important aspect of this project is the opportunity for pharmacy students to interact with rural patients in applying their knowledge of disease states when counseling patients during or after a test. Students are rotated through all aspects of the program (all offered tests) under the supervision of a pharmacist. Each day is different for the faculty mentor and the students thus allowing the students to obtain a rich patient centered experience. There is a significant shortage of pharmacists in the U.S. and rural areas are especially in need and one of the goals of this program is for more students to select rural practice sites upon completion of the Doctor of Pharmacy Program.

Partners are asked to help by arranging for a place for the event and utilities for test equipment. Partners also are asked to work in their communities to advertise or in other ways arrange for people to schedule tests. IPHARM will provide tests at no charge for those unable to pay or if a partner is unable to find local donations to offset these tests. In Federally Qualified Health Centers, IPHARM provides all services at no charge.



IPHARM operates in communities only with a partner. It is not the intention of IPHARM to compete with any local provider. Partners are asked to work with providers in their communities to assure that IPHARM and its' services are welcome.

My colleagues and I very much appreciate the support our programs have received from the various agencies of the Federal Government. We are committed to enhancing the diversity of our student population and ultimately the health professionals who provide the vital health care needed by our citizens. Additionally, we are committed to conduct research at the highest levels necessary to provide new and innovated therapies for disease treatment. We will, whenever possible, include our students in our research so that we can graduate excellent health care professionals dedicated to solving health care problems with creative and critical thinking.

With respect to suggestions, I propose the following:

- It would be helpful for HCOP and other similar programs, such as the Center of Excellence (academic enrichment programs) to have longer funding cycles (at least a five-year cycle) in order for funded programs to achieve the expected outcomes.
- The NSF-EPSCoR program and the NIH-IdeA (Institutional Development Award) program are critical for rural states like Montana (especially those states that do not have medical schools) to enhance basic research, career development in the sciences, doctoral training opportunities, and economic development. Strong support for these programs is warranted based on their documented success and positive impact in these states.
- Incentives should be created to encourage professional students (such as Doctor of Pharmacy), to seek joint training for the Ph.D. degree (Pharm.D./Ph.D.). The cost of obtaining the professional degree is steep, prohibiting most students from considering advanced degree training. The need for this type of training is crucial, not only to maintain training for pharmacy faculty, but also to address the need for having pharmaceutical experts (Pharm.D.'s) become part of the biomedical research work force.
- It would be helpful to have consistent data collection and reporting requirements for all grants in order for better data collection during the entire grant cycle.
- Enhanced support for programs that stimulate economic development in rural states (SBIR and similar programs) is needed since these states typically do not have sufficient resources to attract biotechnology companies or to provide startup incentives for the formation of new companies.
- It would be helpful if a larger portion of Indian Health Service professional scholarships were awarded to health professional students in disciplines other than medicine.
- Support for doctoral training in the biomedical sciences (predoctoral fellowships and training grants), should be enhanced for rural states (EPSCoR / IDeA states) especially in non-medical school programs (pharmacy, biological sciences).

Thank you.