



WAMI—An Experiment in Regional Medical Education

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The WAMI Territory

The WAMI territory is located in the northwestern portion of the United States and comprises four states or 22 percent of the land mass of the United States. Covering six time zones and containing slightly more than six million people, the states of Washington, Alaska, Montana and Idaho (hence, the acronym WAMI) are, in the main, a sparsely populated, rural region which affords innumerable outdoor recreational opportunities. Rich in natural resources and agriculture, the WAMI territory nevertheless faces serious challenges in the fields of health care and health education.

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The Challenges

What are the challenges for health professionals in the WAMI territory?

Shortage and Maldistribution of Physicians

While there is considerable disagreement as to the number of physicians necessary for high quality medical care, there does appear to be a shortage and serious maldistribution of certain kinds of physicians in the WAMI territory. Employing the MD to population ratio as a measure, it is apparent that the WAMI states have fewer physicians per unit population than the national average (Table 1). Furthermore, within a given state this ratio may vary considerably as exemplified by the nine counties in the WAMI territory that are without a physician.

A critical appraisal of the types of physicians in the region¹ leads to the conclusion that there are too few physicians delivering primary care (Table 2). Assuming a 4 percent attrition rate, it will be necessary to add 73 family or general practitioners per year to maintain the present

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TABLE 1.—MD to Population Ratio in 1973

	MD to Population Ratio*	MDs per 100M Population†
United States	1:565	170
Washington	1:556	170
Alaska	1:866	114
Montana	1:930	115
Idaho	1:950	104

*Data obtained from the following sources: Washington State Medical Education and Research Foundation Data Bank, April, 1973; Office of Program Planning and Fiscal Management, State of Washington, April, 1972; Annual Directory of Physicians in Alaska, 1973; Rocky Mountain Medical Journal Directory of Physicians, 1973; United States Census Report, 1970; Idaho Medical Association Directory, 1973. Alaska figures exclude military and Public Health physicians.

†Data obtained from the AMA, 1973.

number of physicians without affecting the present deficit.²

Access to Medical Education

From 1963 to 1973 the number of students applying for admission to medical schools in the United States rose from 17,668 to 36,135 (110 percent) and the number of positions in medical schools increased from 9,063 to 14,124 (55 percent). This national phenomenon has been nowhere better exemplified than at the University of Washington School of Medicine (UWSM). As Table 3 indicates, in the 1963 to 1973 10-year period, the number of students from the WAMI territory applying to UWSM has risen 155 percent. In the same 10-year period, the number of positions at UWSM increased from 75 to 125 (67 percent). As a result of this "crunch," competition for admission to medical school has become exceedingly keen. This is especially critical for schools in the West that are expected to educate not only the residents from their own states, but also students who are residents from states without medical schools, including Alaska, Montana and Idaho (the AMI states). As the size of the applicant pool increases, state-supported medical schools can expect progressively greater pressure to admit only residents from their own state. As a consequence of such pressure, residents from the AMI states may expect progressively greater difficulty in being admitted to medical schools.

Demand for Medical Education

Coincidental with the increased demands for undergraduate medical education and the growing class size have come additional demands on medical schools for continuing medical education (CME). These latter demands can be expected to

increase for two reasons. First, the possibility of professional recertification will require a more formal emphasis on CME. Second, the establishment of Professional Standards Review Organizations (PSRO), which will review the quality of care being delivered, should define the educational requirements to bring the care to predefined levels. Among these needs will be (a) the education of medical school students, residents and physicians concerning Patient Care Appraisal (PCA), a system of medical audit, how it is implemented and how it can improve the quality of medical care; (b) the development of educational courses designed to correct deficiencies defined by PCA and (c) a more formal emphasis on lifelong learning by the physician. In the Pacific Northwest and Alaska, these needs are especially challenging because of the large geographical areas involved and the absence of medical schools in Alaska, Montana and Idaho.

Patients for Medical Training

Over the past decade, the size of medical school classes at UWSM has increased significantly. This increase has placed a significant burden on the patient resources available for clinical training in Seattle.

Costs of Medical Education

Available evidence strongly suggests a progressively greater preoccupation and concern with the costs of medical education. Recently, studies on the costs of medical education were published by the Association of American Medical Colleges (AAMC) and the Institute of Medicine (IOM). The former study reported an average instructional cost of \$8,600 per student per year (range \$5,700 to \$10,200) while the IOM study indicated a net average educational expenditure of \$9,700 (range \$5,150 to \$14,150).

Since the early 1950's, the Western Interstate Commission on Higher Education (WICHE) has facilitated the transfer of funds from states without medical education programs to states with medical schools in return for the admission of residents. In view of the cost studies referred to, it is apparent that the \$5,000 per year supplied by the sending state is significantly less than the costs of medical education. In addition, Deans for Admissions at state-supported medical schools in the West have indicated that this cost-sharing arrangement no longer has a significant influence on the admissions process. It is reasonable to con-

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TABLE 2.—Number of Family and General Physicians in the WAMI Territory

State	Population	Number MD Family or General Practitioners*	Number Osteopathic Family or General Practitioners†	Total Number MD and DO Family or General Practitioners	Actual Number Family or General Practitioners Required‡	Number Additional Family or General Practitioners Required Per Year§
Washington	3,464,900	1,072	158	1,230	1,386	49
Alaska	317,500	71	3	74	127	3
Montana	713,600	229	32	252	285	10
Idaho	739,600	254	20	274	296	11

*From American Medical Association figures as of December 31, 1972.
 †From American Osteopathic Association figures as of December 31, 1971.
 ‡Assumes one family or general practitioner is desirable per 2,500 people.²
 §Assumes an attrition rate of 4 percent per year.²

TABLE 3.—Applications for Admission to University of Washington School of Medicine

Residence	1963	1973	Percent Increase
Washington	180	461	156
Alaska	5	31	520
Montana	40	93	132.5
Idaho	34	76	123.5
TOTALS	259	661	155

clude, therefore, that unless a new arrangement is forthcoming, state-supported medical schools may be forced to reduce greatly, if not eliminate enrollment of residents from states other than the one supporting the medical school.

It is also apparent that the legislature in a state without a medical school would be reluctant to spend the entire cost of medical education for their residents outside of their state. On the other hand, it is generally accepted that the amount of capital and operating costs necessary for a medical school argues against the development of medical schools in the states of Alaska, Montana and Idaho.

The WAMI Program

To meet these challenges, the University of Washington School of Medicine in 1971 embarked upon an experiment in decentralized medical education. The WAMI program, as it is called, has a number of specific objectives.

- Improve the health of citizens in WAMI states through decentralized medical education.
- Increase the number of positions in medical schools without major capital construction.
- Increase the number of primary care physicians in the WAMI states.
- Correct the maldistribution of physicians in the WAMI region.
- Broaden the educational experience of future

physicians through the use of clinical resources in communities.

- Improve and expand continuing education programs for physicians and other health care professionals throughout the WAMI region and integrate these programs into an overall plan which includes undergraduate and residency training.

- Expand the financial base for medical education by encouraging all states to pay the full costs of educating their residents.

- Assist adjacent states with the development of medical and other health professional education.

The WAMI Concept

The WAMI concept consists of two separate phases. In the first or *university phase* of the WAMI program, students receive the first year of medical school training at the University of Alaska, Washington State University, the University of Idaho, Montana State University or the University of Washington School of Medicine. For this portion of the curriculum, faculties and facilities already in existence are used. Existing courses at the cooperating universities have sufficed in some cases, while in others, new courses have been developed. By decreasing the burden on the resources in Seattle during the first year, it is hoped that the number of students admitted to medical school can be increased.

This plan is consistent with the medical school curriculum which was adopted at the University of Washington in 1968. The curriculum change emphasized an integration of the basic and clinical sciences, stressed flexible career choices at an earlier time in medical education, allowed for graduation in three years and established a Department of Family Medicine.

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It was anticipated that following the experience at these universities, the students would join the portion of the class that began in Seattle for the second year of medical education.

At the conclusion of the basic curriculum, the students enter the elective phase of their education which is predominantly clinical in nature. Under the WAMI concept, students during the elective period would receive a portion of their training at the University of Washington School of Medicine and a portion from physicians in communities of the four-state region (*community phase*). These community centers of medical education, or community clinical units, have been established in those disciplines for which there is a need and in which the physician manpower is currently maldistributed. Included in this category are family medicine, internal medicine, psychiatry, pediatrics and obstetrics and gynecology. It was anticipated that these units could be used for a portion of the residency training in the discipline for which they were established. Since the greatest need of the WAMI region is (and was) for family physicians to practice in rural parts of the WAMI region, the first of the community clinical units were to be established in family medicine in rural communities. Finally, the units provide access to a patient population for instruction which is not presently available in the University of Washington affiliated hospitals.

From the beginning of the planning, it was anticipated that if practicing physicians were to be involved in the community clinical units, they would be required either to increase the number of hours they work or to reduce the scope of their practice. In either situation, these community teachers would require reimbursement for their educational effort. While some are willing and able to participate, others find it impossible to do so and still supply the health care needs of the community.

In addition, it is generally accepted that residents tend to practice in the area where they received their training. It was anticipated that residents would not only reduce the physicians' burden of instruction for the undergraduate medical students and consequently free the physician for more patient care, but would also allow the resident first-hand experience in how his or her discipline is practiced in a community setting. If the resident was accompanied by spouse and children, they too could become involved in the community and gain an appreciation of the life a physician leads in that

community. It was hoped that these experiences would create new attitudes in the future practitioners and their families, and act as a recruiting device for the rural areas in the WAMI region.

The founders of the WAMI program felt that community clinical units could also serve as a focus for the continuing education of physicians in the area. In part, this was to be achieved by having inquisitive students interact with physicians over a period of time. In addition, the visits of the community-based faculty to the medical center and visits of the medical center faculty to the communities, would provide a continuing emphasis on learning. Finally, specific programs from the medical center could be transported to the community for use by all physicians in the area. In this way, the continuum of learning throughout professional life could be emphasized. Physicians in training could participate in the development and implementation of new policies and programs which may eventually affect them. In addition, consultation would be available to the communities and the sense of isolation that many rural practitioners feel could be reduced.

In addition to the community clinical units, the state universities without medical schools could play a major role in the process of continuing education for health professionals. This goal would be accomplished by periodic visits to the universities by faculty from the University of Washington School of Medicine.

Finally, it was hoped that the community clinical units could eventually be used to train the various health care professionals as a team. This development could lead to a more effective integration of their efforts and an awareness of the roles that each professional may play.

Rationale for WAMI Program

Considering the needs for health care in the WAMI territory, a number of justifications emerged for implementing the WAMI experiment.

- Provided the university phase of the WAMI program proves to be an effective way to teach the beginning portion of medical education, the WAMI program offers a way to increase the number of physicians in training without requiring new investments in "bricks and mortar." In addition, the WAMI program can reduce the impact that larger numbers of students would have on the medical center in Seattle.

- Since physicians, in large part, tend to practice in those areas where they received their train-

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ing, the decentralization of a portion of the undergraduate clerkships and the residency training programs may reduce the maldistribution of physicians that now exists in the WAMI territory.

- It is now generally accepted that the AMI states, or those without medical schools, cannot financially support a medical school, nor are they paying the costs of educating their own residents in medicine. In addition, there appears to be no possibility of developing a single medical school which would serve more than one state in this area, as was proposed by Dr. Ward Darley in 1958 for Montana, Wyoming, Nevada and Idaho. WAMI provides an alternative solution to this dilemma by allowing a portion of educational appropriations of a given state to be spent in that state. Finally, WAMI offers the universities involved an opportunity to broaden their curricular offerings. These components of the WAMI program provide a basis for a partnership and, in turn, justify the expenditure of "state" funds at UWSM to pay the actual costs of medical education. As such, it broadens the base of support for medical education in the WAMI region and distributes the burden in an equitable way.

- If the WAMI experiment is educationally sound and financially and logistically feasible, then it will be possible to increase the opportunities for medical training available for students from all of the WAMI states, including the state of Washington.

- Through the efforts of the federal government and the medical schools, large numbers of highly trained basic scientists have been educated in the last 10 to 15 years. Some of these scientists are working as faculty members in universities without medical schools and were judged to be effective instructors during their graduate or post-graduate training. In addition, clinical training programs have produced a pool of highly trained manpower which may also be used for instruction. Such teaching represents a resumption of teaching activities required of residents or fellows. The WAMI concept provides a way to involve both manpower pools in the training of physicians without requiring that they be in Seattle.

- It was reasonable to assume that the community experiences will be of acceptable academic quality for a number of reasons. (1) The peripheral faculty are thoroughly evaluated before they are chosen to participate in the program. (2) The periodic visits by full-time faculty to the units and by the clinical (part-time) faculty to the

medical center provide a continual monitoring of the program. (3) The educational experiences will, for most of the disciplines, occur after the students have received their basic hospital training in that discipline at the medical school. As such, the students will require less supervision in the community setting than they would require if this were their first major exposure to clinical medicine. (4) Since residents in the various disciplines are assigned to the units, they assist in the instruction of the undergraduate students in the same way they do in the medical center. (5) Learning resources support is being developed to amplify and reinforce the concepts and knowledge which are germane to the various curricular objectives.

- By decentralizing a portion of the clinical training for medical students and residents, the pressure on the clinical teaching resources at the medical center and affiliated hospitals is reduced. Access to patients in the communities will also provide students experience with diseases which they may not now see in university-related hospitals in Seattle.

- A decentralized program of medical education should provide a more effective basis for recruiting students, including disadvantaged students, from the WAMI area. For example, Alaskan native leaders feel the presence of the WAMI program will be instrumental in convincing native students that medicine is a career option for them. This is especially critical since only one Alaskan native is documented as having been admitted to a medical school.

- The decentralization of a portion of medical education has expanded the number and kinds of educational experiences available to medical students from the University of Washington. By capitalizing on the assets available inside as well as outside the metropolitan setting, students should have a broader background of knowledge, skills and understanding to apply in their professional lives. This background will also provide a better basis for selecting careers, and where these careers will be pursued, than has been available before.

- Should the WAMI concept of decentralized, cooperative medical education prove to be viable, then the concept may be transferred to other fields of health professional education. As such, it was expected that the presence of a medical education program in a state would serve as a central point around which a wide range of health-related education programs would develop.

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- Because the WAMI concept envisioned using the University of Washington School of Medicine as a home base and incorporating facility and faculty resources already in existence elsewhere in the region, it was possible to implement WAMI more rapidly than most new medical education programs. The initial goal was to have the program in operation by 1971, or two years after birth of the plan. In fact, this was achieved in 15 months.

- If even a portion of these expectations for WAMI are realized, it is reasonable to conclude that the overall health of the people in the WAMI territory should be improved. This conclusion rests on the assumption that medical education as presently constituted, is ultimately beneficial to the health of people who make it possible.

Progress to Date

University Phase

In September 1971, nine students began the first semester of medical education at the University of Alaska. This experience was repeated in 1972 with 30 students in Alaska and Idaho and at the Washington State University. In 1973 Montana State University, the fourth and final university in the program, was added and 40 students, distributed equally among the four sites, were involved. It is anticipated that the entire first year of the curriculum will be provided at the University of Alaska beginning in the fall of 1974 and a similar program at the other universities in 1975.

While in these settings, the students enroll in courses which are equivalent to the courses being taught at the University of Washington Medical School. These courses are conjointly designed by the faculties of all universities involved, including UWSM. In addition, faculty from the University of Washington participate in the teaching program in the four institutions as visiting faculty. These visits and a conjointly designed evaluation of the program including a common examination at the end of each course are being used, along with National Board results and performance in subsequent courses, to assess the quality of education and to compare the performance of WAMI students with students who begin medical education in Seattle.

During the course "Medicine, Health and Society" the students visit rural villages in Alaska,

Indian reservations in Idaho and Montana, migrant farm camps in Washington, and community clinical units in all of the states. These visits are designed to expose students to the problems in the delivery of adequate health care to rural areas of the WAMI region. The students also spend half a day per week working with physicians in the local communities to obtain an understanding of the practice of medicine in that community. The majority of these preceptors are primary care physicians.

Community Phase

The first two community clinical units were established in family medicine in Omak and Grandview, Washington, in March 1971. The selection procedure, which is used in establishing all units, involves informing the members of the State Academy of Family Physicians of the educational program available. Along with this announcement is a description of the objectives and a proposal which physicians can complete and return if they are interested. A joint selection committee composed of faculty from UWMS and practicing physicians then reviews the proposals and recommends sites to the Dean.

Since 1971, additional units in family medicine have been established in Oak Harbor and Anacortes, Washington, and in Kodiak, Alaska. In each of the units, two students are now spending six weeks under the supervision of physicians who have been given "clinical" (part-time) appointments in the Department of Family Medicine. Each unit is visited by "home-based" medical school faculty at least once every six weeks. In addition, the community faculty members come to Seattle two to four times a year for orientation, education and planning, and are paid for their educational effort under a contract with the University of Washington.

In addition to the family medicine units, a unit for obstetrics and gynecology has been established in the Treasure Valley of Idaho and involves the cities of Boise, Caldwell and Nampa. Three additional units in pediatrics are operating in Great Falls, Montana; Pocatello, Idaho and Spokane, Washington. Most recently, units have been established in psychiatry (Anchorage, Alaska) and in internal medicine (Wenatchee, Washington and Missoula and Billings, Montana). The 13 units will accommodate over 240 students and residents per year. This is equivalent to space for 26 full-time students and 13 full-time residents.

Principles Learned from WAMI Experience

University Phase

- A knowledgeable "coordinator" with financial and curricular authority is required at each peripheral university. This person must have an administrative supervisor in the university, but must also relate closely to the Director of WAMI, who is at UWMS.

- The conjoint admissions committee concept of having representatives from the admissions committee at the University of Washington and from each of the AMI states select residents from the AMI states for admission to medical school is a feasible way to have input from the participating states. Under the present accrediting regulations, it is necessary for the University of Washington to retain final responsibility for these decisions. Visits by the admissions committee members to the AMI states and to UWMS are required if the participants are going to fully understand each other.

- At least eight students are required for there to be a "critical mass" in each university program. While other students may enroll in the WAMI courses, the WAMI students must develop group cohesiveness, esprit de corps and a sense of professionalism if they are to have the appropriate learning experiences. Students have not felt isolated under these conditions.

- A quarter or a semester is the maximum educational period that a university without experience in medical education should undertake during the *first* and probably the second years of the experiment. Numerous unexpected problems preclude further curricular undertaking if the appropriately controlled experiment is conducted.

- While some existing courses will suffice for the WAMI curriculum, new courses must, in most cases, be developed. The extent to which new courses are required depends in large part on the faculty and curricular resources already in existence. When existing courses are used, special sessions to provide a medical orientation for the subject matter must be provided. This can be accomplished with films, tapes or visiting faculty from UWMS. While the equivalent basic experiences will be provided at each of the universities, it is recognized that each will also offer a unique experience.

- An extensive continuing evaluation program is necessary if questions about the "quality of the experience" are to be answered.

- Performance on examinations taken in common by students who have participated in the university phase of the WAMI program has been indistinguishable from that of students who have not been involved. Similarly, no distinguishable differences have been observed in WAMI and non-WAMI students in courses taken together in Seattle, on the National Board's "Minitest" or on Part I of the National Boards. A small number of the WAMI students have experienced academic difficulty, but the number and severity of these problems has not been greater than in the non-WAMI group. A higher percentage of WAMI students (62 percent), however, are choosing family medicine than are non-WAMI students (47 percent). This observation suggests that the WAMI program has an impact on the attitudes and career goals of the students.

- Students are satisfied with the decentralized approach and will recommend the program to their peers. Of the 78 students who have participated in the university phase, 93.6 percent say they would repeat the experience and the great majority (85 percent) say they would spend an entire year in WAMI if it were offered.

Community Phase

- There have been 159 students and 16 residents who have participated in the community phase. In addition, of the students who began medical school in the university phase of the WAMI program and who are eligible to participate in the community phase, 55 percent have chosen one community experience and 34 percent have chosen two or more.

- Of the first 97 students who spent a six-week clerkship in a family medicine CCU, 79 (82 percent) are still pursuing careers in primary care. Of these, 62 (64 percent) are in family medicine.

- Of the 16 students elected to Alpha Omega Alpha (AOA) and graduating in 1973, 10 had chosen family medicine and were admitted to family medicine residency programs.

- Fewer than 10 percent of the practicing physicians are able or willing to undertake a significant commitment to medical education in addition to an active practice. In addition, fewer than 5 percent of all physicians will devote the time required to become first class instructors. Hence, the presence of a resident in the community clinical unit has helped to provide a satisfactory education environment for students and the community faculty. The presence of the resident, however, has not

compromised in the minds of the student, resident or faculty the experiences available to the students in this setting by the "layering effect" seen in a university hospital setting.

- The periodic visits of faculty from the University of Washington to the community clinical units and vice versa have begun to open major opportunities for the continued education of health professionals. Rounds, special consultant clinics, lectures and discussions with medical personnel have all been initiated on the visits to the units. Both the physicians in practice and the visiting faculty wish to expand this opportunity further, as well as incorporate medical audit, such as Patient Care Appraisal, into the system. The participation of the community faculty in these programs is absolutely essential if students are to observe and, it is hoped, emulate these "role models" who continue to learn throughout professional life.

General

- Because of the limited learning resources support available in the region, the University of Washington must act as a resource to service the needs of all of the WAMI experiment. This is especially critical as the university phase of the program expands and as more of the educational process occurs away from the medical center. It is abundantly clear, however, that while tapes, films and programmed instruction materials are valuable for teaching, they will not replace the need for qualified faculty.

- With the exception of the Alaskan Health Sciences Library in Anchorage, only limited medical library resources exist in the WAMI territory. Consequently, students in all states have made significant use of the Pacific Northwest Regional Health Sciences Library which is located in the Health Sciences Center at the University of Washington. It is necessary, therefore, to develop library resources at each of the university and community sites.

- If the program is to have a long-term survival, financial support from the states involved must be obtained. In addition, the program must become an administrative unit within each of the cooperating universities. Such an administrative unit must have its own curriculum, faculty, space and budget authority.

- Among the major needs of the WAMI program, communication between the participants is of paramount importance. To meet this need, meetings, conferences, telephone conversations,

reports, a newsletter and personal visits have been used. In the future, discussions and meetings will be conducted via the ATS-6 satellite launched by the National Aeronautics and Space Administration on May 30, 1974. This satellite allows for full duplex audio exchange (telephone-like conversations). In addition, two-way simultaneous color television image transmission (full duplex video) will be possible which opens multiple possibilities for communication that are not now available.

Difficulties Encountered

Of the problems encountered in an approach to medical education such as the WAMI program, the single most pressing political issue is the question, "What's in it for us?" Since the program crosses state lines, it deals with four state legislatures, four governors, four state medical societies and four university systems. In the case of Montana and Idaho, there are two or more institutions interested in being involved in the program. It is not surprising, therefore, to find on the subject of medical education differing views and dissimilar priorities among the groups involved. As a result, it has been imperative to define clearly what the benefits are for each party and why a cooperative approach is more beneficial than multiple independent efforts.

The overriding educational question has been about the quality of education that a WAMI student receives at a university without a medical school. The same question is repeatedly raised about the educational experiences in the community phase of WAMI. This issue, which is not completely settled, has been addressed by involving medical school faculty in planning, conducting and evaluating each area of the program. For example, the biochemist who is the chairman of the biochemistry course at the University of Washington School of Medicine, also chairs the planning session for courses which will be taught at the other four universities. He assists in reviewing potential faculty members, assists in the delivery of the course and directs the common examination given at each site at the conclusion of the instruction. Similarly, an academic internist in the Department of Internal Medicine designed, selected, initiated and monitors the community experiences in that discipline. In addition, personnel from the Office of Research in Medical Education (ORME) assist in the development of special or unique evaluation techniques and methods aimed

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at answering special questions and concerns expressed by the faculty (such as National Board performances, performance of WAMI and non-WAMI students in courses at the University of Washington School of Medicine and performance on special examinations).

Another continuing challenge is the coordination of an effort that covers the distances and involves the number of people and institutions that the WAMI program does. The need for communication becomes critical at times and has required the use of newsletters, films and reports, as well as special visits and patience.

The Future

In the minds of many individuals the WAMI program holds great promise for the Pacific Northwest and Alaska. If this promise is to be realized, at least two developments must occur. First, the funding of the program must be assured through a continuing financial commitment by the states. While the AMI states have made a token commitment to the program for the financial year 1974, they will be required to assume the costs of educating their students if the program is to continue after June, 1975.

Second, the academic program must be accredited by the Liaison Committee on Medical Education of the American Medical Association and Association of American Medical Colleges.

While no problem is expected in meeting the requirements of the Liaison Committee, a number of challenging issues remain to be settled.

In the future, it is possible that the WAMI concept will be adapted to other health science disciplines including dentistry, nursing, and selected allied health programs. Equally plausible is a regional network of residency training programs involving the medical center, selected community hospitals and various community based, office or ambulatory settings.

While the regionalization concept has been applied first to educational endeavors, it is appropriate to consider the possibility of further adapting the research and clinical resources of UWSM to serve regional needs. In the case of research, the existing Regional Primate and Regional Cancer Centers could develop programs for the entire region. In addition, planning for additional centers could be oriented toward meeting regional needs. In the case of clinical medicine, UWSM could become a regional resource providing consultation and tertiary care to the people of the WAMI territory. In programs such as this, modern communication technology including satellites may play a major role. Only time will tell whether this potential is realized.

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