NEEDS ASSESSMENT AND ANALYSIS OF POTENTIAL STRATEGIES FOR A PHARMACY EDUCATIONAL PROGRAM FOR ALASKA

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EXECUTIVE SUMMARY

The widespread and generally accepted assessment of pharmacy is that there has been a longstanding and nationwide shortage of practitioners that started in earnest during the 1960s and continues today, although not as intense as during the early years of the 21st Century. The shortage has been caused in large part by an annual growth rate in the number of prescriptions that require processing, which has consistently outpaced the growth rate of the pharmacist workforce. However, other factors are also driving the pharmacy practitioner shortage and these factors are expected to accelerate the demands placed upon the profession well into the 21st century. These factors include:

• A rapid and steady increase in the percentage of the U.S. population above 60 years of age, which is the largest group of medication users;
• Continued growth of the Children’s Health Insurance Program (perhaps a comprehensive national health insurance benefit) and the Medicare Part D Outpatient Prescription program, which will provide even greater access to medications to the youngest and the most elderly segments of the U.S. population;
• New and expanded direct patient care services that actively seek to identify potential medication related problems and monitor and manage a patient’s medication therapy, which may include intervening and consulting with those who prescribe medications, ordering laboratory tests, and prescribing medications under protocol with the patient’s primary physician; and
• New payment mechanisms that will more adequately compensate pharmacists, which will increasingly motivate these professionals to seek and accept a greater role in resolving and preventing medication issues for patients whose diseases are more complex.

There are also several conflicting factors that are likely to impact the future supply and demand for pharmacy practitioners within the state and the country:

• The number of pharmacy graduates from new schools—and from the expanded class sizes at existing schools—will increase the available workforce within the country and quite possibly within Alaska. However, this increase may be offset by the significant number of “baby boomer” pharmacists who will retire, die, or become disabled each year at about the same time the new graduates establish their practices;
• New practitioners will continue to decrease the average age of pharmacists; however, roughly 65 percent of these new pharmacists will be female. This is an important factor when one considers that the historical female workforce has been less productive in their pharmacy practice lifetimes than the historical male workforce; and
• Greater use of technology, particularly in mail service pharmacy, will certainly increase the efficiency and production of prescription fulfillment. However, new roles in direct patient care will require a larger and more clinically prepared pharmacist workforce in the future.
With these factors in mind, this report seeks to provide insight into whether the need exists for a pharmacy education program focused on serving the state of Alaska. Drawing from published data, the report sought to answer six questions:

1. What, if any, is the current shortage of practitioners in Alaska and what steps may be required to bring the market into balance both within the state and the Nation?
2. What is the anticipated future growth—and how many practitioners will be required to meet this anticipated growth—in Alaska and the Nation?
3. What are some of the anticipated changes in the pharmacy profession scope of practice and how will these changes increase or decrease the career options and demand for practitioner services in the foreseeable future?
4. Is there a particular skill set that is not currently being met by the existing pharmacy programs that presently serve students from Alaska?
5. What changes in technology are likely to influence the productivity of pharmacy practitioners in Alaska and the Nation?
6. Will the anticipated growth in the net number of practitioners keep pace with future demand for practitioners?

Nationally, it appears the shortage peaked during 2000-2001 when there was a 10 percent vacancy rate. Since that time the shortage has subsided, though the approximate 3-5 percent vacancy rate that still exists represents a continuing and critical shortage. The shortage is most acute in hospitals and ambulatory care clinics with specialty practices. In many cases the shortage is regionalized, though it also varies greatly within individual states and regions.

In Alaska, pharmacists comprise the third largest primary health profession behind nurses and physicians. Alaska trails the nation in the number of practicing pharmacists for every 100,000 in population; the state has 75 percent as many pharmacists as the national level and 72 percent as many practicing pharmacists as in Washington (WA), based on population. Relatively speaking, Alaska is more in-balance with U.S. data for practicing registered nurses, physicians, and physician assistants than pharmacists. Alaska also has more than twice the number of nurse practitioners and ranks first nationally on a resident population basis. These data are compared to that of WA, which geographically speaking, is the closest major population state to Alaska.

The relative salary of health workers is often one of the best surrogate measures for contrasting practitioner supply versus demand. As of May 2008, the mean annual salaries for Alaska health providers, with the exception of family and general physicians (as reported by the Bureau of Labor Statistics), are higher than both the national averages and the averages in WA. The large number of nurse practitioners in the state who enjoy an independent scope of practice may account for the relatively low salary averages for family and general physicians.

The state has been a net importer of pharmacists through reciprocity of licensed pharmacists from other states. Some data suggest that Alaska may have the largest or second largest population-based number of vacant positions.

The number of patients served per pharmacist ranges from a low of 1,444 in Anchorage/Mat SU, to a high of 7,890 in the Northern region. Every region of the state has more residents per pharmacist than the national average. However, knowing the number (supply) of licensed pharmacists in Alaska relative to the state’s population base (demand) gives one only a general idea of the surplus or shortage of practitioners. Supply data must be balanced with demand data.
There is some data that offers a glimpse into the demand for pharmacists. First, *The 2007 Alaska Health Workforce Vacancy Study* reported 98 vacant pharmacists positions in the state, or one vacancy for every five positions. Recent, preliminary data, collected in 2009, coupled with a significant increase in annual reciprocity data, reflect a decrease in available positions. Second, the same study found that the average length of time required to fill a vacant pharmacy position in Alaska was more than 12 months. A 2008 survey by the Alaska Pharmacy Association confirmed these data by reporting most sites require six months to two years to secure a replacement for a vacant position. The most recent data collected in 2009 suggests that the vacancy rate may be decreasing as positions are being closed, perhaps due to the inability to recruit to and retain pharmacists to Alaska. Third, the Alaska Department of Labor and Workforce Development projects the state will require an additional 26% increase in pharmacists during the 2004-2014 time period.

Using vacant positions, average national pharmacists-to-population ratios, the documented difficulty for Alaska employers in hiring replacements, and state workforce projections regarding the increase in new and replacement positions, a conservative estimate of the current demand for pharmacists is 500-550 practitioners, or 20-30% of the current pharmacist workforce. This estimate does not consider practice needs beyond prescription order filling, and it also does not factor in the supply problems created by managing and staffing a workforce where a significant number of positions are filled by non-residents.

Certain segments of the Alaska health care system and regions within the state may be experiencing significantly greater problems in meeting the demand for practitioners. For the U.S., the general consensus is rural and socioeconomically depressed communities in all states have a greater problem in securing all health professionals; pharmacy reflects these manpower problems as well. In addition, specialized practices (e.g., advanced clinical practice in institutions and clinics, critical care in hospitals, and managerial and supervisory positions) are also difficult to fill. Does that also mean there are specialized segments of pharmacy practice in Alaska that suffer greater shortages than overall state data may reflect? While supply of chain drug store pharmacists may not be great due to the nation-wide presence and recruitment, clinical specialists providing direct patient care in the Alaska Native Heath System without a significant out-of-Alaska recruitment, except for the U.S. Public Health Service, has significant difficulty meeting its pharmacists’ needs.

Alaska is clearly experiencing a more severe pharmacist shortage than the rest of the U.S. and there are structural issues that likely explain some of the workforce shortages in this region, issues that may be similar to those in many rural areas of the U.S. Regardless of these issues, however, the pharmacist shortage is as real in Alaska as it is in most of rural America, and most demographers believe the professional workforce in rural America will continue to incur shortages without some significant incentives. The structural problems are simply too great.

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1 Alaska Health Care Databook, 2007, reports non-residents fill 26% of pharmacists’ positions.
There is a generally identified responsibility for a state to provide its citizens with the opportunity to access careers of their own choosing. There is both a humanistic and an economic benefit for Alaska residents to be able to study pharmacy in Alaska. Being able to remain in-state helps maintain family support units, reduces the cost of obtaining education, and provides a productive worker for the state in a highly beneficial, essential, and high paying profession. The human and economic cost of relocating out-of-state can be significant and beyond the resources of many residents. Alaska has not made significant progress in reducing its shortage of practitioners due primarily to the fact that there is no in-state option for Alaska students who wish to become pharmacists and fewer opportunities for these students to compete at public schools in the Northwest U.S. that have the pharmacy programs and are primarily attended by students who are residents of those states.

The partnership model for pharmacy education is one viable option for University; it would provide the opportunity for Alaska residents to receive a pharmacy degree and generate a meaningful increase in pharmacy manpower for the state. Although there are no sources of data to determine the number of residents who studied out-of-state and then returned to practice in Alaska, the general consensus is that students tend to locate close to where they complete their education and thus don’t return to Alaska. If this tenet is true, then it is logical that conducting—at a minimum—the last year of full-time experiential education in Alaska will increase the likelihood that Alaska residents who study pharmacy will be more likely to remain in the state to practice.

Alaska institutions are familiar with the model for medical education operated by the University of Washington College of Medicine in partnership with the states of Wyoming, Alaska, Montana, and Idaho (the WWAMI model). It requires students to attend classes and laboratories and complete introductory experiential education programs in state during the first year, and then complete the second year of classes, laboratories, and introductory experiential education on the main campus in Seattle. Students may choose to complete years three and four in one of the WWAMI states, including Alaska, but most remain in Seattle for a majority of their Advanced Professional Practice Experiences (APPEs).

While there is not a multi-state, WWAMI-type program for pharmacy education, distributed satellite campus pharmacy education is prevalent among the nation’s existing schools. All programs, except for Creighton University, use faculty based at satellite campuses to work with the students as they navigate a rigorous curriculum. They also coordinate experiential education and provide the quality assurance programs to ensure students achieve a quality program even though they are in a distant location. Accreditation standards require distant delivery strategies to achieve equivalent curricular outcomes and all delivery models require students to complete the same curriculum and learning strategies - laboratories, small group discussions, and experiential education programs - regardless of their physical location. The major differences between the three models are the degree to which students are required to be independent learners and the amount of direct engagement between faculty and students.

If UA were to partner with an existing accredited pharmacy program experienced in satellite program delivery, a satellite campus delivery model for local access to pharmacy education could provide Alaska residents with an opportunity to remain in Alaska to complete their entire pharmacy degree.
The costs for the Alaska student to complete an in-state satellite program would likely be significantly less expensive as compared to relocating out-of-state to study pharmacy. Students would save travel costs and perhaps some living expenses, depending upon where they live in Alaska and where they may relocate.

The Creighton University School of Pharmacy and Health Professions could provide another option for a UA pharmacy program, but this model would minimally involve the UA in pharmacy education. Moreover, it would be significantly more expensive for the student than an in-Alaska partnership program in which the partnering institution assists the UA in operating the satellite program. Securing Legislative support for a UA-delivered In-Alaska program, even as a partner with an existing out-of-state school, may be more politically feasible.

The UA is also considering the establishment of its own accredited, entry-professional pharmacy degree program whose outcome would be a Doctor of Pharmacy (Pharm.D.) degree, which is the only recognized degree for state licensure in the U.S. and is classified as a first-professional degree by the U.S. Department of Education.

The Accrediting Council for Pharmaceutical Education (ACPE) is the lone federally recognized accrediting agency for the Pharm.D. degree program, and all state and territorial licensing agencies require applicants to complete a Pharm.D. degree program from an ACPE accredited program to be eligible for licensure. However, ACPE accreditation does not supersede the regional accreditation for the hosting institution. In fact, the institution must have achieved accreditation status from its regional accrediting agency to offer doctorate programs prior to receiving consideration by ACPE for Pharm.D. programmatic accreditation. The Northwest Commission on Colleges and Universities (NWCCU) is the relevant regional body for granting UA the authority to offer professional doctoral education.

The Pharm.D. degree program requires at least four academic years of professional education preceded by at least two years of defined pre-professional courses. The pre-professional curriculum may be completed at any regionally accredited college or university. The course of study required to award the Pharm.D. (pre-professional and professional program) must be—at minimum—six academic years; however many institutions have revised their admission requirements and now require at least three years of pre-professional coursework, essentially making the Pharm.D. degree a seven-year post-secondary education program.

Under its current standards (Standards 2007), ACPE requires a three-step process for a new Pharm.D. program to attain full accreditation. The cycle for accredited programs can range from being non-accredited to six years. Typically, the initial term for a newly forming program is two years, which is followed by a four-year extension if the program develops as planned.

2 Foreign graduates who have graduated from international pharmacy schools meeting certain criteria may complete an “equivalency” examination to demonstrate that their knowledge and abilities achieve the minimum standards of ACPE accredited programs.
The first step in the accreditation process begins with the appointment of a Founding Dean, under whose leadership the institution files a comprehensive development plan, a six-year pro forma budget, and otherwise designs the program application to meet the current accreditation standards and guidelines.

Once the College has recruited its senior leadership team—typically composed of the dean, one or more assistant/associate deans and usually two department or division chairs—the ACPE will evaluate the application. If the paper review appears to meet the basic requirements, ACPE will schedule an on-campus visit by a site-team typically comprised of one or more Council members; a Dean from another pharmacy program at an institution similar to that of the applicant institution; a faculty member from another pharmacy school; and one or more ACPE staff members. The licensing board in the state where the institution is located is also invited to send a member to participate in the site-team’s review. A major focus of the visit is to evaluate the institution’s ability to successfully execute its plan. Based upon the evaluation, ACPE may either award Pre-candidate Status to the institution, indicating that the Council has accepted the institution’s plan, or it may refer the application back to the institution with specific issues that must be resolved.

After it achieves pre-candidate status, the institution may admit its founding class, although it is not yet considered officially “accredited.” Graduates from a program having only Pre-candidate Status are not eligible to apply for licensure in any state or territory that requires graduation from an ACPE accredited program.

After the first class is enrolled, the Council typically sends a second site-team to the campus near the end of the first year to evaluate how well the institution is implementing its plan for its founding class during the initial stages of matriculation. The Council once again reviews the site-team report and considers whether or not to award Candidate Status to the program. Graduates of a program that has achieved Candidate Status are recognized as having received their degrees from an “accredited” program and are therefore eligible to apply for licensure in any state or territory that requires graduation from an ACPE accredited program.

The Council will require the institution to present written reports throughout its early developmental years and will often request annual presentations by the dean and institution officials. If necessary, the Council may schedule additional focused, on-site visits during the three- to five-year period in which the program is under Candidate Status. Regular on-site visits occur approximately 18 months apart, assuming the institution is proceeding according to its plan. In the spring semester prior to the graduation of the founding class, the Council will authorize another major on-site review to evaluate whether the institution has fully implemented its plan. Following the graduation of the first class, the Council will consider awarding full accreditation, which designates the program as Accredited.

An analysis of institutional readiness criteria for developing an accredited and fully in-state pharmacy program at the UA concluded that the UA Anchorage (UAA) and UA Fairbanks

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3 According to United States Department of Education regulations, a program can be in Candidate Status for up to five years. If full accreditation has not been achieved within the designated time-period, the program must begin the development cycle again.
(UAF) are at different stages when it comes to the feasibility of initiating a pharmacy program. In short, both have deficiencies to overcome before undertaking a professional pharmacy school. A combination joint UAA and UAF delivery would be possible, but only one university can be accredited to offer the degree.

In this report, the Consultant developed a plan that outlines the major decisions that must be made as part of the UA’s planning process, assuming it will ultimately decide to move forward with preparations for the new program and will hire the Founding Dean to be on-site in 2011. Other planning assumptions the Consultant used in developing the plan:

1. The pharmacy program will be organized as a separate academic unit of UA with a Dean, an Associate Dean for Curriculum and Outcomes, an Assistant Dean for Students, an Assistant Dean for Experiential Education, and two department chairs (pharmacy practice and pharmaceutical sciences). There will also be appropriate professional and clerical staff to support program development and operations.

2. The program will be configured primarily using a 3-4 structure whereby students complete three or more years of pre-professional studies and then apply for admission to the final four years of professional education;

3. The program will admit 30 students per entry class into the final four years.

4. Tuition for the pharmacy student will be equal to the WWAMI medical student tuition.

5. Tuition will be inflated by 5% annually.

6. The program will include a set-aside for scholarships (tuition discounts) of 5%.

7. The University will construct a new building or renovate an existing and structurally sound building to house the new pharmacy program, according to the program design presented in this plan.

8. Additional and pharmacy-specific library resources and support fees to meet the pharmacy curriculum will be allocated to the statewide Alaska Medical Library.

9. The Pharmaceutical Sciences faculty will be employed on a 12-month contract basis at a rate comparable to the 75th percentile of public pharmacy schools. The Pharmacy Practice faculty will be employed on a 12-month contract basis—at a rate comparable to the 75th percentile of public pharmacy schools—to teach experiential education year-round in the fourth professional year.

10. Pharmacy staff salaries will be paid according to typical UA staff salaries.

In reviewing the thirty ACPE accreditation standards that must be fully met to achieve an accredited program, the Consultant provided 19 recommendations to assist the UA in addressing the needs for a new pharmacy program should this be the option exercised.
The focus of a Pharm.D. program should be on preparing pharmacists to primarily practice as providers of direct patient care to individuals with complex, medication controlled diseases (most chronic diseases). This is the one area of health care that is poorly served by the current, fee-for-service health care system. Knowledge and skills in medication distribution and control would also be a core knowledge and experience, but the future demand will be greatest in the care of patient with a greater potential for medication related problems in complex diseases. Such a focus will require a greater scientific preparation in the biomedical sciences and understanding of disease processes with a greater number of hours and intensity of the experiential component of the curriculum. Strong partners with the Alaska health care community to provide the clinical education should be a major component in planning the curriculum.

The 5-year planning analysis suggests that the program tuition and fee revenue would be $7.5M, but operating costs would be $18.5M, resulting in the need for the Legislature to appropriate $11M over five years for the UA to offer the program. Annual appropriations of $1.9M to $2.7M (FY13-FY17) will be required in addition to a $12M facilities capital appropriation.

Assuming there are no unexpected delays in the decision process, construction of facilities, recruitment of a Founding Dean, and accreditation reviews—and assuming favorable votes are secured from the NWCCU and ACPE—the program can enroll its founding class (P1 year) of pharmacy students (3-4 program) in fall 2013. These students would comprise the program’s first graduating class in May 2017.
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INTRODUCTION
When assessing the future need for a particular health profession in any given geographical region, it is important to consider five distinct and variable elements:

1. Is there currently a shortage of practitioners within the region? If so, what steps may be required to balance the market?
2. What is the region’s anticipated future growth and how many practitioners will be required to meet this anticipated growth?
3. What are some of the anticipated changes in the profession’s scope of practice and new career options and how will these changes increase or decrease the future demand for practitioner services within the region being evaluated? Will future practitioners require new or different skill-sets than those of current practitioners, and if so, how will these requirements affect the available workforce within the region?
4. What changes in technology will likely influence the productivity of pharmacy practitioners?
5. Will the anticipated growth in the net number of practitioners keep pace with future needs for practitioners when one considers other growth variables? (e.g., future graduation, retirement, and death rates; reciprocity into and away from the state and region; and practitioners leaving the profession).

If a detailed evaluation of these elements indicates an anticipated available workforce that does not balance with the region’s anticipated needs, the profession will continue to experience a shortage until structural changes are implemented to adjust these elements.

The General State of the Pharmacist Workforce In the Nation
Pharmacy is generally recognized as a profession with a long-standing shortage of practitioners. The evidence of the shortage has been well documented: rapidly increasing practitioner salaries, increased job vacancy rates, aggressive recruiting by all segments of employers, and extended time-lines in filling positions. Responses to the shortage of pharmacists have varied and have typically included reducing the number of practitioners required within a market by reducing the number of hours the service is offered; utilizing technology and hiring technical staff to augment pharmacy productivity; and increasing the supply of available pharmacists by opening new pharmacy schools or by expanding entry class sizes at existing pharmacy schools.

In addition, pharmacy is rapidly becoming a profession with an increased community focus. Historically students from across a state have migrated to an existing professional school within that state—or to a professional school in an adjoining state—to obtain their education, and then returned to their community to practice. However, today’s education consumers demonstrate two distinct strategies for obtaining their professional instruction. The most predominate of these is

the trend toward demanding greater local access. This is evidenced by a students’ willingness to disburse higher tuition, which is facilitated by an expanded ability to borrow funds for education. If their career choice is not available at a school in close proximity to their home, the student will then select an alternate career field that is offered at a nearby educational institution, even if that career field is ultimately less satisfying. A second strategy, which is employed less frequently but is perhaps more devastating to a community, is when the student elects to follow their career dreams, and if not place-committed, will relocate to another community, often some distance away, despite greater tuition and living costs. The impact on the home community is magnified when these students, on graduating, remain within their new community to train and practice. When this occurs, the home community experiences a “brain drain” that will have long-term devastating consequences for its economic development.

Assessing the need for pharmacy education calls for a sharper focus on regionalization and requires answers to a somewhat unique set of questions, including:

- Are there unique population demographics within the state or region that will drive the future supply and demand for practitioners?
- Although a state/region may presently suffer a shortage of pharmacists, what is the anticipated future workforce demand within the specific state/region where a new pharmacy school would be located?
- What is the level of student demand to study pharmacy in the region?
- How accessible is pharmacy education to place-committed students who desire to become pharmacists?

The first section of this report will seek to generally assess the current and future demand for pharmacists in Alaska, first by presenting background information regarding characteristics and practices within the pharmacist workforce nationally, and then by focusing more intently upon the current status and predicted future supply of the pharmacist workforce within the state and within the greater Northwest region. The overall objective is to determine whether the national and statewide supply and demand for pharmacists will continue to produce shortages, surpluses, or balances through 2030. Addressing these issues should allow policy makers to more ably determine whether there is a need for some state-supported pharmacy education in Alaska.

The second major section of the report will attempt to assist policy makers in determining which format they should consider in providing pharmacy education for Alaska citizens (e.g. contracting with an existing accredited program to deliver distance education; a regionally delivered in-state format; or a University of Alaska program). The section will present an overview of accreditation issues and provide an assessment of Alaska’s capacity for experiential education, a critical element in any region’s delivery of pharmacy education. Multiple strategies will be analyzed, including pro forma capital and operations budgets.

Finally, the report will conclude with recommendations and “next step” suggestions to help policy makers address pharmacy manpower issues within the state should they decide that pursuing these issues is best for Alaska. At best, projecting the needs for any profession for more than a decade into the future is risky. These projections are particularly difficult for pharmacy when one considers: (1) the rapid acceleration of academic program enrollments recently seen in the market and currently under development; (2) the explosive technology growth increasing the efficiency of medication distribution and control that has been stimulated, at least in part, by the existing shortages; (3) the changing regulatory climate governing the accreditation of pharmacy programs and the practice of pharmacy; and (4) new roles in direct patient care and changing payment strategies for a pharmacists’ products and services.
Charge To The Consultant, Sources Of Data, and Limitations

The President's Office at University of Alaska contracted with the Consultant to produce a needs assessment for pharmacy education in Alaska. The consultant's charge was to consider the intermediate and—to the best extent possible—the longer-term need for pharmacists in Alaska. The Scope of Work requested a national scan of the demand for pharmacy education in the United States and recent trends in academia to respond to these needs. A special focus on the needs of rural states is to be included. Of particular interest is new pharmacy programs, trends in pharmacy education, and accreditation.

No original data were collected for this study other than general information gleaned from a non-random interview with University officials, representatives of the Alaska Pharmacy Association, and selected in-state providers. Instead, published data and databases from multiple federal and state governmental workforce and regulatory agencies and professional societies were analyzed to identify employment trends and projections. Data used to identify pharmacy school enrollment trends and current applicant pool characteristics was collected from institutional research data collected annually by the American Association of Colleges of Pharmacy.

The analysis also combines projected workforce data estimated by different state and federal agencies and at different time periods. Recent actual data (e.g., annual license reciprocity rates, current school enrollments, etc.) were used to forecast several years beyond the period for which the data were intended to project. From a research perspective, these processes and data sources can lead to significant errors in the analysis. Therefore, one should consider these data to be rough estimates of the future supply and demand for pharmacists, and thus for the changing needs for pharmacy education. Many trends and factors can—and will—change the validity of these estimates.
SECTION 1 – NEEDS ASSESSMENT

BACKGROUND

Demand for Pharmacists Creating A Demand for Pharmacy Education

Health professions are often classified into two groups: providers and technical assistants. Providers are the health careers that are directly responsible for the care of patients while technical assistants are those that provide the essential technical expertise and patient care support required for providers to deliver optimal and quality services.

Pharmacy is one of the eight primary human health professions providers. Others include Audiology, Dentistry, Medicine, Nursing, Occupational Therapy, Optometry, and Physical Therapy. With more than 280,000 licensed practitioners nationally, pharmacists are the third largest health profession, behind nurses and physicians.

The demand for pharmacists is drawn directly from the development and use of medications within the United States (U.S.) and the world’s health care systems. Medications include prescription drugs, non-prescription drugs, biological products, diagnostic agents, radionuclides, and food products with intended therapeutic uses (often herblals). Medical devices are also considered a focus of pharmacy because state boards of pharmacy typically have a role in regulating these instruments.

The demand for all health care services has been on an exponentially upward trajectory for decades. Pharmacy has also experienced an increased demand because almost every health and medical treatment or procedure uses medications of some category or form as an adjunct to prepare the patient for treatment, control the physiological systems during medical procedures, control of symptoms or adverse effects, or as the primary cure. Moreover, while medications are adjunctive to medical care, they can—when used inappropriately or without careful assessment and monitoring—create new medical problems for patients. Thus, the pharmacists’ unique knowledge and skills within the realm of health care services are critical for a health system to achieve optimal outcomes.

Health care demand, and therefore the demand for pharmacists, is expected to continue. Demand for pharmacists is driven by major changes occurring in basic human demographics and the explosive impact of medical technology, including new and more effective drug therapies. Some of these demand drivers are recent: the increasing age of the population; growing obesity rates; and an increased and detailed understanding of biological systems that leads to the development of new diagnostic and treatment modalities. Thus, the overall supply and demand for pharmacy and pharmacists is an important element to planning all future health professions manpower models.

Shortage of Pharmacy Practitioners

The nation’s shortage of pharmacists was first officially identified in the 1960s when the U.S. Congress initiated capitation funding to the nation’s pharmacy schools, which was designed as a way to increase class sizes to meet an existing and growing need for practitioners. While larger class sizes—and the resulting increase in graduation rates—helped reduce the shortage in the 1980s, the national shortages were not eliminated. A shortage of practicing pharmacists was again documented during the period of 1988-1994. The shortage gained significant national attention in the latter half of the 1990s and into the early 2000s as the profession’s societies and trade associations began to complete annual surveys of vacant positions both nationally and in each state. The shortage of practitioners was reassessed and verified by the U.S. Bureau of Health Professions in 1999 and then revisited for a third and fourth time in late 2003 and 2008.
The primary driver of demand for pharmacists in the 2000s—a steady growth rate in the population’s use of medications—is the same as it was in the 1970s and 1980s. The number of medications ordered annually has expanded greater than the available workforce. However, the underlying causes of today’s expansion in medication usage are different. During the 1970s and 1980s growth was driven by new and more effective therapeutic agents being introduced into the marketplace and the growing popularity of third-party prescription insurance programs that reduced the economic impact of ordering medications for prescribers (physicians and dentists) and users (patients). Those factors remain important drivers today, but growth is also being fueled by an aging society with a significantly higher rate of utilization per person, an increase in the number of patient visits to multiple new prescribers who are generating increased prescription volume (physician assistants, nurse practitioners, and pharmacists have been given prescriptive authority in most states, thereby increasing access to medication orders), and the greater emphasis that is placed upon early diagnosis and treatment of chronic diseases.

As we look into the future, a new, perhaps more dramatic stimulus to prescription growth is the rapid increase in the U.S. obesity rate. While obesity rates have increased modestly—from 31% of the U.S. male population in 2003 to 33% in 2005, and from 33% to 35% in women—the prevalence for obesity in children aged 2-5 increased from 5.0% to 10.4%. For children aged 6-11, the rates increased from 6.5% to 17%, and for those aged 12-19 the rates increased from 5.0% to 17.6%. The concern is obese children and adolescents are at high risk for health problems during their youth, and as adults, and there is a very high correlation between childhood obesity and adult obesity. Linkages between obesity and Type 2 diabetes, coronary heart disease, cancers, hypertension, dyslipidemia, stroke, liver and gallbladder diseases, sleep apnea and respiratory problems, osteoarthritis, abnormal menses and infertility are well documented.

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5 The Health Professions Educational Assistance Act of 1963.
8 Medco Health Solutions, Drug Trend Report, Vol 6, Number 1, May 2004.
10 Defined as a Body Mass Index (BMI) equal to, or greater than 30.
Today many pharmacists in the U.S. never actually touch medications; instead they dedicate their knowledge, skills and time to counseling patients, planning and managing population-based medication programs, prescribing medications, and ordering and interpreting laboratory studies to monitor a patient’s progress in controlling disease through optimized drug therapy plans that are developed in collaborative practice agreements with physicians. In short, these expanded opportunities further reduce the number of pharmacists who are available to meet the traditional role of order fulfillment. The industry has attempted to provide a counter balance by introducing technology and developing high volume mail service pharmacies that serve many workers and retirees with chronic medications. These strategies have certainly reduced the number of pharmacy providers required to meet the patient load for order fulfillment, but the shortage of pharmacists continues to outpace the new technological efficiencies.

All these trends should continue well into the second and third decades of the 21\textsuperscript{st} century, and there are new factors on the horizon that will have an effect—whether positive or negative—upon the supply and demand for pharmacists and their services. For instance:

- The percentage of the population above age 60 (the largest user of medications) will rapidly increase
- The Medicare Part D Outpatient Prescription program (in effect January 2006) and the likelihood of the continued expansion of the Children’s Health Insurance Program (CHIP) will regularly provide greater access to prescription medications for the elderly and children under the age of 18, the segments of the population that have generally purchased medications out-of-pocket
- New payment mechanisms are compensating and encouraging pharmacists to take a greater role in helping patients who have complex diseases prevent and/or resolve medication problems. This Medicare Part D benefit was being rolled-out by the benefits managers in fall 2006, but it has not yet become the standard of practice nationwide
- Establishing new pharmacy schools—and expanding incoming class sizes at existing pharmacy schools—is increasing the supply of pharmacists to the workforce
- The large number of “baby-boomer” pharmacists who will be retiring in the next 5-20 years will become a major manpower issue
- The percentage of females in the pharmacist workforce is growing (females typically work fewer hours than their male colleagues during the early years of their professional lives due to their role in starting families. Females have also shown a historical tendency to work fewer hours as they approach retirement age)
- Technology is reducing the labor intensity required for pharmacists to fill orders.

\textit{Growth in Student Demand}

As expected, the demand for entry into the nations’ pharmacy schools and colleges began to rise once high school and college students began to recognize that the profession provided excellent financial benefits and working conditions, enjoyed a good reputation, and was cognitively stimulating.

Today most schools report that they receive more than five qualified applicants for each position. At some institutions, in fact, those numbers swell to more than eight qualified applicants for each position.

\textsuperscript{13} The number of applications per school often includes individuals applying to multiple programs.
The applicant pool for the fall 2008 entry class was 6.2% greater than for fall 2007, with 103,747 applicants reported by all U.S. programs.

In response to the increased practitioner and student demand, higher education institutions have opened new professional schools and increased the entry class sizes of existing programs. In 1990 there were 71 accredited pharmacy programs in the U.S.; by March 2009, the total number of programs at one of the three stages of accreditation had reached 112. In addition, it is generally understood—though not well documented—that another 10-15 institutions are currently planning new schools. Moreover, existing schools have generally increased their entry class sizes and every program that existed in 1995 has expanded their enrollments, accounting for approximately two-thirds of the increase in the number of projected graduates for the class of 2010. With the number of new schools, plus the expanded class sizes at existing programs, graduation rates that had averaged roughly 7,000-8,000 graduates per year for approximately 1520 years prior to 2005 expanded to 10,500 in 2008. As the new programs and increased class sizes are fully implemented, Accrediting Council for Pharmacy Education (ACPE) projects that by the 2010-2011 academic year, the nations’ pharmacy schools will graduate approximately 12,000 students.

Will Supply And Demand Ever Become In-Balance?

Even when the complexities of future demand and the growing number of graduates are considered, there is a serious and continuing concern as to whether or not the pharmacy profession is training a sufficient number of future practitioners. Indeed, the demand for pharmacists is likely to grow exponentially when one considers the number of additional practitioners who will likely be required to handle the growing demand for the medication-related and enhanced professional services that pharmacists are uniquely prepared to provide.

One attempt has been made to analyze the current workforce’s duties and responsibilities, project future trends in both medication use, assess the growth of technology and its impact on workforce needs, and factor in the evolving responsibility of the pharmacist from order fulfillment to direct patient care roles. A national panel of 24 leading experts representing all sectors of pharmacy practice was convened in the fall of 2001 to “delineate and forecast the need for pharmacists” in the U.S. by 2020. It should be noted that the panel’s work was not intended to predict supply or demand for pharmacists using the same methods demographers employ when they seek to make projections about a workforce. In this forecast, need was defined as “the number and types of pharmacists that experts in the field think will be required to deliver high quality pharmaceutical care to the population.” The panel’s conclusions are shown in Table 1.

17 The AACP is the single, federally recognized accrediting organization for professional pharmacy education in the United States.
Table 1: Current Use and Projected Need for Pharmacists in the U.S.

<table>
<thead>
<tr>
<th>Task</th>
<th>Current Use of Pharmacists in 2001</th>
<th>Projected Need for Pharmacists in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution (order fulfillment)</td>
<td>136,400</td>
<td>100,000</td>
</tr>
<tr>
<td>Primary Patient Care Services</td>
<td>30,000</td>
<td>165,000</td>
</tr>
<tr>
<td>Secondary/Tertiary Services</td>
<td>18,000</td>
<td>130,000</td>
</tr>
<tr>
<td>Indirect/Other Services</td>
<td>12,300</td>
<td>22,000</td>
</tr>
<tr>
<td>Total</td>
<td>196,700</td>
<td>417,000</td>
</tr>
<tr>
<td>Total Supply</td>
<td></td>
<td>260,000</td>
</tr>
<tr>
<td>Shortfall</td>
<td></td>
<td>157,000</td>
</tr>
</tbody>
</table>


The panel’s analysis and estimate of future workforce needs took into account positive drivers such as medication use and the changing roles for pharmacists, and negative drivers such as the increased use of technology for order fulfillment and the increased number of graduates from new and expanding schools. The numbers still portend a significant shortfall of practitioners throughout the U.S. by 2020, especially when one considers the diverse and expanding roles for pharmacists.

### DEMOGRAPHIC AND PRACTICE CHARACTERISTICS OF THE PHARMACIST WORKFORCE

The pharmacist workforce is somewhat unique when compared to that of other larger health professions such as dentists, nurses, physical therapists, and physicians. The differences are generally apparent in several key areas:

- **Gender ratios** - the professional pharmacist workforce has only recently shifted away from being male dominated. This trend will continue at a dramatic rate into the future because, since the 1970s, the percentage of female pharmacy students has become dominant. In addition, the pharmacists who will retire during the next 5-20 years will be almost exclusively male because males dominated the workforce prior to the mid-1970s;

- **Average age** - pharmacists today are older as group than physical therapists, but younger than nurses, physicians, and dentists. The mean national age is 47 and decreasing

- **Percentage of licensees engaged in active practice** - the percentage of pharmacy licensees in active practice is higher than that of nursing, but lower than that of medicine and dentistry. This fact may be rooted in primary gender characteristics of each profession and the earning potential of the service provider.

These characteristics must be considered when one attempts to project pharmacist workforce needs into the future.

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30 A 2006 study, the most recent projection of the supply of pharmacists in 2020 by Knapp and Cultice, validated the projections in Table 1. Given the most recent data on work patterns of pharmacists and the increase in number of graduates, the 2020 estimated supply of pharmacists, estimated by FTE’s, was 258,559. Knapp, K and Cultice, J. New pharmacist supply projections: Lower separation rates and increased graduates boost supply estimates. *J Am Pharm Assoc*, 47:463, 2007.

Survey of Pharmacy Practitioners Demographic and Practice Patterns

The American Association of Colleges of Pharmacy (AACP) coordinated the most comprehensive research document into the basic practice characteristics of pharmacists. The study was completed in 2000 and repeated in 2004 by a team of researchers from five Big Ten pharmacy schools under a contract with the Pharmacy Manpower Project (PMP). The study design centered on a national, representative sampling of licensed pharmacists who completed a mail survey form that asked questions about their practice patterns and demographic characteristics. Some of the important findings from that study that are relevant to projecting future workforce needs include:

- In 2000, 12% of all licensed pharmacists were not actively engaged in pharmacy practice; in 2004, 14% of all licensed pharmacists were not actively engaged in pharmacy practice – an increase of 2% from 2000 to 2004.
- 8% of all licensed pharmacists were retired in 2004, compared to 6% in 2000.
- 73% of all licensed pharmacists in 2000 were working full time (defined as > 30 hours/week) and the average workweek for full-time practitioners was 44 hours/week. By 2004, only 68% of all licensed pharmacists were working full time and the average hours decreased to 42 hours/week.
- Employment status differed according to gender. In 2000, 76% of licensed female pharmacists were employed full time in professional practice, compared to 88% of their male counterparts. By 2004, only 68% of licensed female practitioners were employed full time. The average workweek for full-time female pharmacists was approximately the same in both years, but was 10% less than that of male pharmacists. The average workweek for part-time pharmacists, regardless of gender, was 19 hours.
- 43% of all licensed pharmacists in 2000 were female, continuing the trend toward female practitioners that rapidly increased during the last several decades of the 20th Century. This number rose to 45.9% by 2004.
- 78% of female pharmacists worked part time when they were 23-45 years old, while fewer than 20% of male pharmacists worked part time during these same years. More males (62%) tended to work part time past the age of 60, an age by which a majority of female pharmacists have retired from active practice.

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22 Pharmacy Manpower Project is a co-funded office managed by the American Association of Colleges of Pharmacy for the profession. The participating organizations are the Academy of Managed Care Pharmacy, American Association of Colleges of Pharmacy, American College of Apothecaries, American Pharmaceutical Association (recently renamed the American Pharmacists Association), American Society of Consultant Pharmacists, American Society of Health-System Pharmacists, Bureau of Health Professions – Department of Health and Human Services, National Association of Chain Drug Stores, National Association of Boards of Pharmacy, National Community Pharmacists Associations, National Council of State Pharmacy Association Executives, National Pharmaceutical Association, National Wholesale Druggists’ Association, Pharmaceutical Research and Manufacturers Association, and Pharmacy Technicians Certification Board.

On average, the workforce equivalent of 1.0 female pharmacist full-time equivalent (FTE) was equal to 0.8 male pharmacists FTE in both years.\(^{24}\)

In comparing changes in practice patterns of male and female pharmacists from 1995, 2000, and 2004, male pharmacists worked similar hours full-time, but the trend in retirement age for male pharmacists was progressively younger. This tendency was also documented for female pharmacists, but just as the percentage of female pharmacists in the workforce increased over the three periods of time, the average number of females retiring by age 55 also escalated.

The fundamental conclusion drawn from the national manpower studies is that the hours worked by a licensed pharmacist professional is decreasing over time. Therefore, simply focusing on a headcount of licensed pharmacists is not an accurate measure of the professional workforce as it relates to the professional services available to the U.S.

**Gender Shifts in Pharmacists and Enrollment Trends in Pharmacy Students and Graduates**

One national trend that has started long before the 2000s is the gender shift within the profession. As early as 1980, females comprised less than 20% of the professional pharmacy workforce. This began to change as we moved through the 1980s. By 1990, 32% of the pharmacist workforce was female, and by 2004, females comprised 46% of the workforce. By 2020, one source has estimated that females will make up 62% of the pharmacist workforce. This trend can be explained by the changing demographics seen in pharmacy education.

Chart 1 shows total enrollment at pharmacy schools from 2000-2008, separated into male and female students.\(^{28}\) Four observations are apparent: First, pharmacy school enrollments have increased 112% from 1985 (25k students) to 2008 (52k); Second, the majority of pharmacy students are female (ranging from 65-66% each year); Third, the majority of the overall growth in pharmacy enrollment generally reflects the transition from the three-year to the four-year Pharm.D. program from the late 1990s until 2008 (students attended pharmacy school for 4 years rather than 3 years, increasing total enrollment by 1/3); and Fourth, total enrollment has increased dramatically since 2005.

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\(^{27}\) Some programs are six years post-high school, some are four years post pre-professional studies and some are three calendar years post pre-professional studies. These data include any student enrolled in any of these program configurations. Considering only the last four professional academic years, the total number of students is approximately 41,000. The attrition rate for the last six years has averaged 4.7%.

\(^{28}\) The year 2000 is selected for analysis since from fall 2000 to the present, all accredited colleges and schools were required to offer the Pharm.D. as the single professional degree. Enrollment numbers through 2004 include baccalaureate students (three professional years) who were admitted prior to 2000 for most programs.
Chart 1: Total Pharmacy School Enrollment by Gender 1985 – 2008

Chart 2 shows the annual number of graduates (first professional degree), separated into male and female from 1985-2008. During the time period depicted, female graduates ranged from a low of 60% of the total graduates in 1990 to a high of 66% in 2002.

Chart 2: Total Pharmacy Graduates By Gender: 1985 – 2008

Source: AACP Database
The Impact of Retirement, Disability, and Death On Pharmacist Workforce

Generally speaking, workforce analyses have not focused on the impact that retirement, disability, and death have made on the pharmacist workforce. The previously discussed National Pharmacist Workforce Survey of 2004 reported that 14% of the workforce was either retired, disabled, or had left active full- or part-time practice and that death rates have been relatively insignificant. It could be that significant—or sufficient—attention has not been paid to these analyses because the pharmacist workforce is generally younger. However, one must wonder whether this factor is likely to remain the same in the future, or will it change?

The data in Chart 3 shows the annual number of pharmacy graduates nationwide for the period 1961-2008 and provides some indication of important changes that may occur in the pharmacist workforce over the next several years and beyond.

Chart 3: Annual Number of Pharmacy Graduates: 1961-2006

Prior to the 1960s, the annual number of pharmacy graduates was generally fewer than 3,000 per year. During the 1960s, except for 1964, the annual increase in pharmacy graduates typically ranged between 7% and 9% more graduates each year (the increase in 2006 from 2005 was 9.3%). This factor, more than any other, explains why the pharmacist workforce is relatively younger than many other health professions. For three years, beginning in 1974, the annual increase was dramatic and reached an all time high of 8,011 pharmacy graduates in 1978. The next several years saw a reduction in the number of graduates until about 1988, when the trend again reversed. There was a 6% increase in the number of graduates each year through 1990, and since 1991 there have been six years with a reduced number of graduates year over year and nine years with <5% annual increases. The primary cause of the down years during the 1990s through 2003 was likely the transition made by schools from the five-year B.S. program to the six-year

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29 Graduation rates in 1964 were significantly impacted by the switch from the 4-year B.S. entry degree (post high school) to the 5-year (2 year pre-professional and 3 year professional) program. 1959-1960 was when the last of the 4-year programs switched to 5 years, therefore not having a 1964 graduating class.
Pharm.D. program. Graduation rates in 2006 may have marked a shift in the trend when—with a 9.3% increase over 2005—the nation’s new and expanding programs graduated more than 9,000 pharmacists for the first time. This is approximately twice the number of pharmacy school graduates seen 20 years earlier (1986) and three times the number seen 40 years prior (1966).

The additional workforce generated by new schools coming on-line recently and the expanding enrollment in existing schools, a process that is well into its second decade, will expand the number of annual graduates to 12,000 and beyond. It also seems clear that—because of the rapid growth in graduates during the 1960s through the mid-1970s—the annual number of active pharmacists aging into their 60s and 70s will greatly accelerate in the coming years. The dramatic growth of graduation rates in the 1960s and early 1970s is directly linked to the beginning of the “baby boomer” generation, which is defined as individuals who were born in the last half of the 1940s and who graduated in the 1960s and into the mid-1970s. Thus, the number of pharmacists aging into their 60s and 70s from 2012 to 2032 will be significantly greater than in previous years. This indicates that there is likely to be a greater percentage of the pharmacist workforce impacted by retirement, death, and disability beginning as early as 2010. Since female pharmacists historically tend to retire earlier than their male colleagues, the transition to a female dominated profession will further compound this impact. It seems likely, then, that for the period from 2008-2020, approximately 65-70% of all pharmacy school graduates will simply replace the retiring, dying, and disabled workforce. This will only leave approximately one-third of the total number of new graduates to meet the increasing professional demands of pharmacy.

**Summary of Practice and Education Characteristics of Pharmacists**

Assuming that the professional practice characteristics identified by the AACP study will continue into the future, persons projecting the size of the pharmacist workforce must carefully consider and include shifts in the gender and age of pharmacists if they wish to accurately estimate future workforce needs. The profession’s demographers must also take into account the large number of licensees (1.4 of every 10 licensed pharmacists in 2004) who will not, at any given point in time, be actively engaged in providing patient services due to retirement, disability, or career change. Death rates will also increase dramatically as the number of graduates from the 1960s and early 1970s age. Therefore, while the number of new schools and the expanded class sizes at existing programs will significantly increase the number of graduates over the next several years, there will never be a true 1:1 relationship between pharmacy school graduates and the number of practitioners needed to satisfy the professional workforce.

**THE NATIONAL SUPPLY AND DEMAND FOR PHARMACISTS**

According to estimates by the U.S. Labor Department’s Bureau of Labor Statistics, there were approximately 280,000 licensed pharmacists in the U.S. in 2005 and about 230,000 (82%) in active practice. While this number has increased dramatically since the 1960s, the primary factor driving the need for pharmacists—the number of prescriptions in ambulatory settings and

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11 The projected number of graduates is expected to top at approximately 12,000. Peter Valasse, President, ACPE, July 2006.

medication orders in institutions—has increased at a greater rate. In the retail sector alone, the number of prescriptions filled has been increasing approximately 5% each year since the early 1990s, while the annual rate of growth in the number of pharmacists has averaged only 1.6% during the same years. Although the percentage of prescriptions in 2006 increased only 2.7%, that is likely an anomaly. From 1995 through 2005 alone, the total number of prescriptions filled in the country increased from 2.1B to 3.4B (an overall increase of 67% or 7% annually). Comparable figures are unavailable for pharmacists who practice in institutional and other settings, but this statistic alone suggests there will be growing pressure on the professional workforce to meet the expanded demand.

**Evidence of a National Shortage of Pharmacists**

In 1999, the U.S. Congress directed the U.S. Bureau of Health Professions to study the pharmacist workforce. The extensive analysis conducted in 2000 concluded: “…there has been an unprecedented demand for pharmacists, and for pharmaceutical services, which has not been met by the current supply.” According to the analysis, the factors contributing to the shortage included:

- Increased use of prescription medications;
- Market growth and competition among retail pharmacies resulting in increased pharmacist positions, expanded store hours, and new store openings;
- Expansions in pharmacy practice and pharmacists’ roles and professional opportunities;
- Increased access to health care and the increased number of health care providers authorized to prescribe medications;
- Changes in the pharmacists workforce, including the greater number of women pharmacists and their shorter work patterns; and
- The double impact of increased insurance coverage for prescription drugs, resulting in an increase in both prescription volume and the number of third-party payment issues that need to be resolved.

The consequences of the shortage were acknowledged to have created a negative impact on the profession and the public. The major problems that were identified:

- Reduced time for pharmacist to provide patient counseling – a role of increasing importance in light of the expanded use and complexity of medications;
- Job stress, inadequate working conditions, and reduced professional satisfaction due to longer working hours and lesser flexibility in scheduling, and introducing fatigue-related factors that increase the potential for medication errors;
- Service restrictions particularly affecting underserved or otherwise vulnerable sectors of the population such as the elderly, residents of rural communities, individuals with

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mental illness who are on medications, and persons dependent on publicly-supported services such as Native Americans and veterans; and

- Recruitment of pharmacy practice faculty away from schools and colleges of pharmacy, hampering schools’ ability to increase class size.

In December 2003, the Labor Department’s Bureau of Labor Statistics updated their pharmacist workforce statistics and projected the need for pharmacists in 2010. The Federal agency charged with monitoring and projecting the national workforce estimated that the U.S. would require an additional 25,000 pharmacists (approximately 12% of the current workforce) by 2010 to fill the new positions. These are additional new positions beyond the number of new practitioners needed simply to replace pharmacists who retire, are disabled, die, or leave the profession. To achieve this goal the nation’s pharmacy schools would need to increase their annual production of pharmacists by 4,166 each year. This represents a 57% increase over the total number of graduates in 2003 and assumes that 100% of these graduates enter practice each year, which is an unrealistic assumption.

In December 2008, the Health Resources and Services Administration, Bureau of Health Professions published the most comprehensive analysis and projections of pharmacist manpower needs for the future. Using current census bureau workforce data from 2004 (191,200 full time equivalent (FTE) active practitioners), the staff projected the future supply of pharmacists from US programs and foreign graduates, making adjustments for female-male practice differences and estimating the number of retirements and disability incidents. They modeled various supply scenarios from 2004-2030, including: no growth in educational capacity vs. a 10% increase vs. a 20% increase over baseline; retirement two years earlier versus retirement two years later; a 10% increase in per capita hours worked versus a 10% decrease per capita hours worked. These strategies produced an annual workforce supply estimate on a year-by-year basis. This analysis projected that by 2030, the 2004 baseline workforce of 191,200 FTEs will grow from a low of 286,900 to a high of 364,200, with a FTE count of 318,000. The former assumed pharmacists worked 10% fewer hours than today and the latter assumed that the number of graduates increased 20%.

The baseline projected supply of pharmacists suggests that future manpower needs will be even greater than previously estimated, perhaps by as many as 50,000. This revised number is likely a result of the growing number of pharmacy schools and increased enrollment discussed previously.

HRSA researchers attempting to estimate the growth in demand from 2004-2030 used the same manpower projections strategies. They based their demand estimates on contemporary practice models where “demand for pharmacists is derived from the demand for pharmaceuticals and the role of the pharmacist in providing the dispensing, counseling, monitoring and other services that patients require.” They did not attempt to model changes in the scope of practice for pharmacists to include Medication Therapy Management for Chronic Disease Management, a role for which most pharmacy schools today are preparing future practitioners to assume. Their

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estimated baseline for demand in 2004 was 201,600 FTE pharmacists, or 5% more than the available supply of 191,200 FTE practitioners. These estimates comported with several other published surveys conducted at about that same time. To quantify the growing demand in the total number of prescriptions over the same time period, the researcher’s population growth model was adjusted for age category (aging population); changes in per capita prescriptions written during ambulatory visits; projected growth in Medicare Part D prescription coverage; and trends in dispensing efficiencies (technology and mail service) so that estimates of pharmacists dispensing products across multiple patient care environments (ambulatory and inpatient) were captured. The resulting total prescription estimates were subjected to alternative demand scenarios, much like the pharmacists supply analysis, to produce a range of future manpower requirements. When comparing supply and demand across these various scenarios, HSRA estimated that the U.S. could have a surplus of 24,300 pharmacists (assuming a decrease in per capita consumption of medications across various population categories), or a shortfall of 100,000 (assuming an increase in per capita consumption of medications across various population categories). Their overall best estimate was a shortfall of 37,900 FTE pharmacists.

Chart 4: Projected Pharmacist Requirements Under Alternate Scenarios

There is only one source of pharmacist supply and demand data that is updated monthly: The Aggregate Demand Index Sponsored by the Pharmacy Manpower Project. The index is computed from data submitted by a “panel of persons who participate in the hiring of pharmacists on a direct and regular basis. It is intended that the panel represent the major

39 Pharmacy Manpower Project, Aggregate Demand Index, www.pharmacymanpower.com
geographic and practice sectors of pharmacy practice in the United States. Membership on the panel is by invitation from PMP members and consultants. Data submitted by panel members are confidential. Panelists are not compensated for participation.” The index ranges from 5 to 1, with 5 = High demand: difficult to fill open positions 4 = Moderate demand: some difficulty filling open positions 3 = Demand in balance with supply 2 = Demand is less than the pharmacist supply available 1 = Demand is much less than the pharmacist supply available. The data for April 2009 is depicted in Chart 5.

**Chart 5: Aggregate Demand Index for April 2009**

Alaska was categorized as a state having an index value of 4, *Moderate demand: some difficulty filling open positions*. This value was higher than that of the nation as a whole (value 3.8), the same as WA, and lower than ID (4.32) in the Northwest U.S. When compared to April 2008, the national index by April 2009 had decreased from 4.07 to 3.8, reflecting a continued shortage of pharmacists, but also a move towards a balanced market (index of 3). Only one state, HI, has fewer positions to fill than the number of available pharmacists and the greater Northeast region is the only area where supply and demand is generally balanced.

**Summary of a National Shortage of Pharmacists**

There appears to be reliable evidence that there is a continuing national shortage of pharmacists, perhaps in the range of 3-5%, and that this shortage likely will continue into the foreseeable future until at least 2030. These national projections are based solely on the pharmacists’ traditional role of dispensing medications (both in health care systems and community pharmacies) and do not address changes in the scope of practice such as administering immunizations in community practice, non-medication dispensing and related monitoring and counseling, and direct patient care in chronic disease management as is common among a growing number of health system practitioners. Moreover, since there are multiple specialized practice areas within the pharmacy profession (e.g., clinical specialist, managerial, staff community pharmacists, staff institutional pharmacists, consultant pharmacists, pharmacy faculty, etc.), some specialization areas may continue to experience shortages while others may be in-balance.
THE SUPPLY AND DEMAND FOR PHARMACISTS IN Alaska

Supply of Alaska Pharmacists

Pharmacists comprise the third largest primary health profession in Alaska behind nurses and physicians. As Table 2 shows, Alaska trails the nation in the number of practicing pharmacists for every 100,000 in population; Alaska has 75% as many pharmacists as the national level and 72% as many practicing pharmacists as in WA for each 100,000 in population. Relatively speaking, Alaska is more in-balance with U.S. data for practicing registered nurses, physicians, and physician assistants. Alaska also has more than twice the number of nurse practitioners and ranks first nationally on a resident population basis. These data are compared to WA, the closest major population state to Alaska geographically.

Table 2: Health Professions Data Per 100,000 Population for Alaska, WA and the U.S.

<table>
<thead>
<tr>
<th>Profession</th>
<th># Active Prac/100K Alaska Pop</th>
<th>% Active Practitioners/100K Alaska Pop to US Pop</th>
<th># Active Prac/100K WA Pop</th>
<th># Active Prac/100K U.S. Pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacists</td>
<td>51</td>
<td>75%</td>
<td>71</td>
<td>68</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>783</td>
<td>100%</td>
<td>735</td>
<td>780</td>
</tr>
<tr>
<td>Physicians</td>
<td>166</td>
<td>84%</td>
<td>196</td>
<td>198</td>
</tr>
<tr>
<td>Nurse Practitioners</td>
<td>67</td>
<td>200%</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>Physician Assistants</td>
<td>15</td>
<td>107%</td>
<td>19</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: HSRA, bhpr.hrsa.gov/healthworkforce/reports/statesummaries/alaska.htm

One of the best surrogate measures of practitioner supply versus demand can be the relative salary of health workers. Table 3 depicts the estimated salaries for Alaska’s major health professions in May 2008. The mean annual salaries for Alaska health providers, except for family and general physicians, are higher than both WA and the national averages. The relatively low salary for family and general physicians may be due to the large number of Alaska nurse practitioners who enjoy an independent scope of practice.

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41 Alaska, Arizona, New Hampshire, New Mexico, Oregon and Washington are among states that have enacted the most expansive NP scopes of practice. In all of these states, the authority of NPs to practice independently includes the authority to prescribe drugs without physician involvement.

18
Table 3: Health Professions Data for Alaska, WA and the U.S.: May 2008 Estimate

<table>
<thead>
<tr>
<th>Profession</th>
<th>Mean Salary Alaska</th>
<th>Mean Salary WA</th>
<th>Mean Salary U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacists</td>
<td>$110,610</td>
<td>$103,000</td>
<td>$104,260</td>
</tr>
<tr>
<td>Dentists, Gen</td>
<td>$203,000</td>
<td>178,700</td>
<td>$154,270</td>
</tr>
<tr>
<td>Physicians, Family &amp; Gen</td>
<td>$138,380</td>
<td>$153,450</td>
<td>$161,490</td>
</tr>
<tr>
<td>Physicians, OB/GYN</td>
<td>$193,520</td>
<td>$177,470</td>
<td>$192,780</td>
</tr>
<tr>
<td>Physicians, Pediatrics</td>
<td>$165,570</td>
<td>$158,080</td>
<td>$153,370</td>
</tr>
<tr>
<td>Physical Therapist</td>
<td>$78,450</td>
<td>$72,550</td>
<td>$74,410</td>
</tr>
<tr>
<td>Registered Nurses</td>
<td>$72,820</td>
<td>$71,140</td>
<td>$65,130</td>
</tr>
<tr>
<td>Physician Assistants</td>
<td>$78,450</td>
<td>$72,550</td>
<td>$74,410</td>
</tr>
</tbody>
</table>

Source: Bureau of Labor Statistics, for Alaska: bls.gov/oes/2008/may/oes_Alsaka.htm#b29-0000; For WA: bls.gov/oes/2008/may/oes_wa.htm#b29-0000; for US: bls.gov/oes/2008/may/oes_nat.htm#b29-0000

The data in Table 4 shows the various ratios of employed pharmacists across Alaska’s Regions. The number of patients served per pharmacist ranges from a low of 1,444 in Anchorage/Mat SU, to a high of 7,890 in the Northern region. Every region of the state has more residents per pharmacist than the national average.

Table 4: Ratio of Residents per Pharmacist in Alaska Region and Total U.S.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Southeast</td>
<td>49</td>
<td>70,822</td>
<td>1,445</td>
</tr>
<tr>
<td>Anchorage/Mat-SU</td>
<td>244</td>
<td>352,282</td>
<td>1,444</td>
</tr>
<tr>
<td>Gulf Coast</td>
<td>47</td>
<td>74,904</td>
<td>1,594</td>
</tr>
<tr>
<td>Southwest</td>
<td>18</td>
<td>39,979</td>
<td>2,221</td>
</tr>
<tr>
<td>Interior</td>
<td>60</td>
<td>102,005</td>
<td>1,700</td>
</tr>
<tr>
<td>Northern</td>
<td>3</td>
<td>23,669</td>
<td>7,890</td>
</tr>
<tr>
<td>TOTAL In Alaska</td>
<td>421*</td>
<td>663,661</td>
<td>1,576</td>
</tr>
<tr>
<td>TOTAL In U.S.</td>
<td>239,920</td>
<td>299,398,484</td>
<td>1,248</td>
</tr>
</tbody>
</table>


Demand for Pharmacists In Alaska

Knowing the number (supply) of licensed pharmacists in Alaska relative to the state’s population base (demand) gives one only a general idea of the surplus or shortage of practitioners. Supply data must be balanced with demand data.

Unfortunately, there are no published data that accurately estimate (1) the demand for pharmacists’ patient care services; (2) the number of prescriptions being written, but not filled; or (3) the delays in receiving medications on a timely basis, thereby hindering the recovery from acute illnesses and prolonging the suffering caused by chronic conditions.

There is some data that offers a glimpse into the demand for pharmacists. First, The 2007 Alaska Health Workforce Vacancy Study reported 98 vacant pharmacists positions in the state, or one vacancy for every four positions. An updated study in 2009, yet unpublished, suggests that while there has been progress in reducing the number of vacate positions, a significant shortage remains. Second, the same 2007 study found that the average length of time required to fill a vacant pharmacy position in Alaska was more than 12 months. A 2008 survey by the Alaska Pharmacy Association confirmed these data by reporting most sites require six months to two years to secure a replacement for a vacant position. In fact, one respondent reported they were unable to hire a full-time person after more than two years and another respondent reported she...
sought to fill a vacant position for 305 months. Third, the Alaska Department of Labor and Workforce Development projects the state will require an additional 26% increase in pharmacists during the 2004-2014 time period.

Loosely combining data from the published information for (1) vacant positions (98 of 421 total), (2) average national pharmacists-to-population ratios (68/100,000), (3) the documented difficulty for Alaska employers in hiring replacements (in some cases, up to 6+ months), and (4) state workforce projections regarding the increase in new and replacement positions (26% by 2014), a conservative estimate of the current demand for pharmacists is 500-550 practitioners, or 20-30% of the current pharmacist workforce. This estimate does not consider practice needs beyond prescription order filling, and it also does not factor in the supply problems created by managing and staffing a workforce where approximately 1 in 4 positions are filled by nonresidents.

Areas of Greatest Shortage of Pharmacists For Alaska

Statewide data depict an overall demand for pharmacists in Alaska that is greater than the current supply, and it is likely that certain segments of the health care system and regions within the state may be experiencing significantly greater problems in meeting the demand for practitioners. In the lower 48 states and Hawaii, the general consensus is rural and socioeconomically depressed communities have a greater problem in securing all health professionals; pharmacy reflects these manpower problems as well. In addition, specialized practices (e.g., advanced clinical practice in institutions and clinics, critical care in hospitals, and managerial and supervisory positions) are also difficult to fill. Does that also mean there are specialized segments of pharmacy practice in Alaska that suffer greater shortages than overall state data may reflect?

The 2007 Alaska Health Workforce Vacancy Study provides data that supports the perception that certain segments of the Alaska health care industry may be experiencing the same general problems with workforce shortages as seen in the lower 48 states and Hawaii. The study focused on all the major health professions in Alaska, including pharmacists, and a sample of state providers (476 for pharmacists) was used to make statewide estimates. Both pharmacists and pharmacy technicians were considered; however, this analysis will focus only on pharmacists.

There were an estimated 413 positions (95% confidence range from 227-759) with 98 unfilled positions (95% confidence range from 36-159). This gave a vacancy rate of 24% (95% confidence range of 16%-31%) or 1 out of every 3 to 4 positions vacant. While this is a very large vacancy rate, the shortage was significantly distorted between the various employer sectors and regions of the state. Chart 6 shows the distribution of estimated pharmacy vacancies by

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42 Personal communication, Nancy Davis, Alaska Pharmacy Association, June 2009.
43 Alaska Health Care Databook, 2007, reports 26% of pharmacists’ positions are filled by non-residents.
employer group and Chart 7 shows the distribution of estimated pharmacy vacancies by geographic region.

**Chart 6: Sample Survey (N=476) Pharmacist Vacancies By Employer Group: 2007**

As seen in Chart 6, Tribal Health Organizations (52%) accounted for more than half of the vacant positions in the survey (estimated state-wide 43%). The other three sectors in the sample were approximately equally underserved.

**Chart 7: Sample Survey (N=476) Pharmacist Vacancies By Geographic Region: 2007**

Chart 7 indicates that the entire state, based on geographic regions, reported significant shortages. The Northwest, the region of the state with perhaps the lowest density of population, had the greatest shortage. It didn’t appear that the shortages were specifically confined to urban versus rural: the shortage in urban communities was estimated to be 23% (±9%), while the estimated rural community shortage was 26% (±14%). The only region that was close to achieving an imbalance market was Anchorage/Mat-Su. The overall conclusion of the study’s authors was that available data “clearly indicated that the Pharmacist shortage (in Alaska) is a state-wide phenomenon.”

**Projecting the Future Supply of Pharmacists for Alaska**

Changes in a state’s pharmacist workforce supply are influenced by four factors: First, the graduation rate of pharmacists from in-state pharmacy schools who remain in state to practice (residents of the state who complete their pharmacy education in another state and return home to practice is currently the primary source of new workforce members in Alaska); Second, the gender of graduate pharmacists; Third, the net difference in reciprocity, which is the number of pharmacists moving into Alaska from other states to practice minus the number of Alaska pharmacists moving to other states to practice; and Fourth, the rate at which pharmacists leave the workforce due to death, disablement, retirement, or career change.

When considering these four factors as components to growing its pharmacist workforce, Alaska has no pharmacy program, nor does it support residents who attend pharmacy school in other states. Thus, the primary source of future pharmacist manpower is not currently operational in Alaska. As an alternative to an in-state school or a program whereby the state supports the placement of its residents into other programs, Alaska residents may, on their own, apply to, and be accepted, to pharmacy schools in the other states with pharmacy schools, the District of Columbia, and Puerto Rico. The data in Table 5 reports the total number of Alaska residents studying pharmacy in the U.S. and the schools where they most frequently enroll.

| Table 5: Alaska Resident Enrollment in US Pharmacy Schools 2003-2009 |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| University Montana | 5 | 5 | 6 | 6 | 3 | 5 |
| University Washington | 3 | 3 | 2 | 3 | 3 | 2 |
| Washington State Univ | 3 | 3 | 3 | 3 | 1 | 1 |
| Idaho State University | 1 | 1 | 1 | 2 | 0 | 0 |
| Oregon State University | 4 | 4 | 5 | 4 | 2 | 3 |
| University of Hawaii | 0 | 0 | 0 | 0 | 1 | 1 |
| Univ of New Mexico | 1 | 1 | 3 | 2 | 2 | 3 |
| Creighton University | 2 | 2 | 2 | 1 | 1 | 3 |

Source: AACP reports

46 The three states without pharmacy programs are Alaska, New Hampshire and Maine. Maine will be opening two new programs in 2009/2010.
Several observations are apparent from the data in Table 5.

- **Alaska has had relatively few students matriculating to U.S. pharmacy schools and the total number appears to be slowly declining.** The Total Alaska enrollment numbers for each academic year presented in Table 5 are the total number of students enrolled in one year of a 4- or 6-year professional program. Thus, the total enrollment number divided by four estimates the annual headcount of graduating Alaska residents. If total enrollment were 28 students, one can assume only 6-7 graduates.

- **There are no data to determine whether these students return to Alaska to practice after they move to another state to attend pharmacy school.** With the demand for pharmacists on the rise throughout the U.S., it is reasonable to assume some of the graduates do return, while others remain in the state or region where they attended pharmacy school. If Alaska pharmacy graduates return at a rate of 50% per year, the state’s growth in new graduating practitioners is less than 4 pharmacists/year.

- **No one school serves a significant portion of the Alaska students.** The University of Montana, which has the smallest entry class among the institutions listed (historically approximately 65/year), has been the most frequent pharmacy school attended by Alaska residents. However, the maximum number of Alaska students attending that 4-year program has been 6, an average of less than 2 Alaska students/class.

These observations indicate that building Alaska’s future pharmacists manpower by adhering to the existing strategy—where Alaska students compete at existing pharmacy schools across the U.S.—is a scenario that is unlikely to create a pharmacist workforce to meet the state’s demand for pharmacists.

Without a state program to produce new practitioners, and fewer of its residents attending existing out-of-state schools, Alaska has historically depended upon residents from other states to reciprocate, or move their license to Alaska to practice. The data in Chart 8 depicts the annual number of pharmacists reciprocating into Alaska compared to the state’s population change.

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47 Pharmacists, like all health professionals, must hold a license in the state that they practice. Licenses are obtained in one of two ways: (1) taking a comprehensive examination, typically upon graduation either in the state where the graduate completed pharmacy school, or if the graduate plans to practice in another state, in the state where they wish to initiate practice; or (2) reciprocating their original license from their state of licensure to a new state. If they reciprocate, they must maintain their original license or the reciprocated license becomes null and void. Since the examination is ever evolving, few pharmacists re-take the licensure examination, opting to reciprocate their original license when they change jurisdictions.

All states, except California, uses the national testing service of the National Associations of Boards of Pharmacy (NABP), the professional society of state board of pharmacy members. The NABP will verify applicants’ scores on the nationally administered test to various states upon request and payment of a fee to allow the receiving state to verify applicants have passed the national examination. In addition to exam scores, the reciprocity database provides states with data on criminal actions and license actions across states.
Three observations are apparent from the data in Chart 8. **First**, there does not appear to be a relationship between the number of pharmacists reciprocating into or out of Alaska and the growth of the population. This observation is particularly relevant to the period 2006-2008, when the rate of population growth diminished while the reciprocity rate into and out of Alaska increased.

**Second**, few Alaska pharmacists reciprocate their license out of Alaska. This trend likely reflects the fact that most pharmacists in Alaska received their Alaska license by reciprocity rather than taking their original licensure examination in Alaska. A pharmacist may only reciprocate a license out of a state that bestowed the original license by examination.

**Third**, the annual number of pharmacists reciprocating their license into Alaska has been relatively stable from the late 2000 through 2006, averaging 50/year. Then, in 2006, and dramatically more so in 2007, the annual numbers increased significantly (64 in 2007; 137 in 2008). This substantial change could be due to several factors: an increased, new demand for practitioners brought on by the expanding scope of practice in Alaska; a growth in the Alaska health care system that outpaced the state’s population growth; a greater number of pharmacists retiring, dying, losing the ability to function, or leaving the profession than in previous years; and greater recruitment efforts by employers in Alaska. It is likely that the substantial reciprocity rate increases into Alaska during 2006 and 2007 are a combination of these factors.

If this two-year trend continues, or the number of pharmacists reciprocating into Alaska at least stabilizes at approximately 140 per year, this could produce a significant growth in the state’s pharmacist manpower, the result of which would be a shorter timeframe whereby equality in supply and demand is achieved. The costs associated with continuing to recruiting these practitioners versus the costs of developing an in-state program is an area for further analysis.
Age Distribution Of Alaska Pharmacists With In-State Address

The data in Chart 9 presents the age distribution of Alaska pharmacists licensed with the Alaska Board of Pharmacy with Alaska addresses in 2009. The workforce is younger than the U.S. overall; the majority of pharmacists are from 35-55 years old, with an average of approximately 45 years. Retaining these pharmacists in Alaska and increasing the in-state supply will help relieve the vacancy rate.

Chart 9: Age Distribution of Alaska Pharmacists

Source: Alaska Board of Pharmacy, 2009

A Summary of the Projected Future Supply and Demand for Alaska Pharmacists Workforce - Will There Continue to Be A Shortage?

Several notes of caution are necessary before answering the question posed by this section heading: combining data from multiple studies that employ different methodologies, and make estimates based upon differing time periods, can lead to inaccuracies in quantifying future workforce projections. Moreover, while workforce data generally tend to trend upward gradually, there can be external forces that can, and likely will, cause significant variation from period-to-period, both upward and downward. For example, when new federal programs are instituted (e.g., the Medicare Part D Outpatient Prescription Drug Program that began in January 2006) the marketplace cannot quickly adjust. Thus, there will be structural changes in the future demand for pharmacists that can create gaps in future demand functions. At best, a demographer hopes to project major trends that will account for future unknowns and therefore provide policy makers with some degree of accuracy with which to make difficult decisions.

Before presenting the future workforce projections, it is critical to make note of three important drivers that will influence the future demand for pharmacists, but are NOT included in most pharmacist manpower analyses. These factors are likely to increase the future demand for pharmacists significantly but—because of the reasons previously cited—they impact is difficult to estimate. However, since these factors are not considered, the projected and future shortage of pharmacists is likely to be conservative. These factors include:

- There is no adjustment that accounts for the potential impact of the 2006 Medicare Part D Outpatient Prescription Drug program and the general increase in Medicare recipients who will become eligible in 2012 and beyond, or for any other future national
health insurance program that likely would provide medication coverage and increase the local demand for order fulfillment by pharmacists. President Obama and the U.S. Congress have pledged to provide a greater level of access to all Americans within the current administration, which will place an even greater importance on this factor.

- The pharmacists’ job will change dramatically, from order fulfillment to a practice increasingly focused upon providing direct patient care.
- Mail service pharmacies will continue to expand their role as the primary distributor of chronic disease medications and health supplies.

With these cautions and future demand drivers in mind, some of the conclusions about the available data regarding the future pharmacist manpower needs in Alaska are clear:

1. **There are geographic areas and certain sectors of the health care system in Alaska experiencing a severe pharmacist shortage; the available and future licensed pharmacist workforce appears to be significantly smaller than the number of available jobs and patients’ needs for pharmaceutical services**

   There is no national standard of what constitutes a manageable shortage versus a severe shortage of pharmacists. HRSA believes shortages in the 3-5% range are worthy of concern to an area meeting its population’s health care needs. It seems, given the publicity created in many regions of the U.S. experiencing a 5% shortage, Alaska’s shortage of 20-30% of current jobs would be considered a crisis in most states and gives little hope that the future situation will rapidly or significantly improve.

2. **The data documents (at least for 2007) that both urban and rural areas of Alaska have dramatic shortages. With the only source of manpower being reciprocity into Alaska (this being individuals who are commuting into the state, rather than becoming part of the resident population) it is unclear whether or not the state has any hope of meeting the health systems’ need for pharmacists without some other intervention to enhance the supply of pharmacy practitioners.**

   As pharmacist manpower in the lower 48 states becomes more in-balance, it is possible that Alaska employers will be able to secure the services of non-residents to meet the state’s pharmacist needs for medication order fulfillment. However, it is unlikely that highly skilled practitioners needed for advanced clinical services will be willing to commute to the state on a long-term basis. Special needs situations (e.g., clinic-based direct patient care and critical care) are also unlikely to attract non-residents on a long-term basis.

3. **Fewer Alaska residents are attending pharmacy schools in the other states and territories of the U.S.**

   Pharmacy schools continue to see large applicant pools relative to the number of available positions. Alaska residents, like students in other states, are opting for local access to higher education and are more reluctant to move great distances to obtain their education and return home to practice.

CONCLUSION TO THE NEEDS ASSESSMENT

The U.S. has experienced a long-standing and often severe shortage of pharmacists, and although the shortage subsided modestly in the late 1990s and early 2000s, that shortage remains in 2009. Additionally, the profession has struggled to meet patients’ basic order fulfillment needs while also developing a new, expanded scope of practice to include more direct patient care initiatives like chronic disease management. The need for pharmacists who possess enhanced clinical skills is great and will likely surpass the demand for order fulfillment practitioners by 2020.

Responses to the shortage have included: 1) increasing technology and employing technicians trained at higher levels to assume many of the order fulfillment roles; 2) supporting the growth of mail service pharmacies; 3) decreasing the hours of available service in many community pharmacies by closing nights and weekends, thereby reducing the number of practitioners required to staff a pharmacy; and 4) producing more graduates by expanding existing programs and dramatically increasing the number of new programs, a process that began in the mid-1990s and has accelerated into the 2000s.

However, the opportunity to achieve a balanced pharmacist workforce in Alaska in the near future is somewhat uncertain. There is a clear societal need for more pharmacists to meet the growing demand created by more prescriptions and by the unique services that only pharmacists can effectively provide. Moreover, the profession, for the first time in its history is facing: 1) a shift to a workforce dominated by females who historically work fewer hours and shorter careers than their male counterparts; 2) a growing population of senior citizens, who historically and disproportionately have been the country’s largest users of medications; 3) new prescription programs for Medicare recipients (and likely very soon for children under 18 years of age) that increases access with its concomitant greater utilization rates of medications; and 4) the retirement, death, and disablement of a significant number of practitioners in the pharmacist workforce. On the other hand, the significant increase in the total number of graduates nationwide that will be entering the workforce over the next 5-10 years—and beyond—will likely help protract the recent trends that have seen the profession become more in balance when viewed from a national perspective. What remains unclear is whether factors that drive the shortage will overwhelm the strategies that have been established and implemented to address the workforce shortage and have produced the significant growth seen recently in the number of new practitioners.

Alaska is a state that has made some progress in reducing its shortage of practitioners, but a continued shortage remains, especially in rural areas of the state. This can be attributed primarily to the fact that there is no in-state option for Alaska students who wish to become pharmacists and fewer opportunities for these students to compete at public schools that dominate the pharmacy programs in the Northwest U.S. with students who are residents of those states.

Alaska is clearly experiencing a more severe pharmacist shortage than the rest of the U.S. and there are certainly structural issues that likely explain some of the workforce shortages in this region, issues that may be similar to those in many rural areas of the U.S. Regardless of these issues, however, the pharmacist shortage is as real in Alaska as it is in most of rural America, and
most demographers believe the professional workforce in rural America will continue to incur storages without some significant incentives. The structural problems are simply too great.
SECTION 2 – PRE-PHARMACY EDUCATION IN ALASKA

BACKGROUND

The three main campuses and community campus network offers pre-health professions’ courses that will allow The University of Alaska (UA) students to complete the course requirements for admission into most health professional schools. The goal is to identify those UA courses that would meet the requirements for admission into accredited pharmacy programs in the U.S. The following sections addresses the relevant issues pertaining to the UA meeting the needs of students interested in studying pharmacy.

Comparison Between Regional Pharmacy Schools’ Pre-Pharmacy Requirements and the Equivalent Courses At The UA

Unfortunately for students seeking admission to existing pharmacy schools, there is no standardization among the current pharmacy schools, even within the Northwest geographic region. Table 6 presents the pre-pharmacy requirements and other basic admission criteria and program characteristics of the five accredited pharmacy schools in the Northwest (MT, ID, OR, WY, WA) and Creighton University in Nebraska, a potential partner for UA to secure on-line pharmacy education.

Bachelor’s Degree: Most pharmacy schools do not require students to have earned a baccalaureate degree prior to applying to the professional school, but most programs give preference to baccalaureate graduates. The degree major is not important, but the applicant must have completed the specified pre-pharmacy courses regardless of the UA baccalaureate course requirements for the degree.

Program Structure: The structure of pre-pharmacy and professional curriculum will vary from program to program. The most frequent structure is 2 or 3 years of pre-pharmacy studies and 4 years of professional studies. The majority of programs in the Northwest are structured as 3 years pre-pharmacy and 4 years professional studies. The universities of Montana and Washington are exceptions.

PharmCAS Application: PharmCAS is the national Pharmacy College Application Service. Most programs require students to apply through PharmCAS as well as to each school the student is interested in attending. Idaho State University and the University of Montana do not participate with PharmCAS at this time, but may begin participation at a future date. More information on PharmCAS may be found at www.pharmCAS.org.

Application Deadline: Pharmacy schools generally admit students only once a year for the fall semester or quarter. Schools have different deadlines for applications. Students must be sure to submit all required information and ensure that all their college transcripts are received by the deadline, along with payment of the application fee. Late or incomplete applications will likely not be considered for admissions in the following fall semester.

Expected GPA: Most programs have a minimum, cumulative GPA of 3.0 on a 4.0 scale, including all courses attempted, even if a course is repeated with a higher grade. The expected cumulative GPA given in the table is typically the effective minimum GPA to be competitive at that school, typically based on the previous year’s minimum entry GPA.
Pharmacy College Admission Test (PCAT): PCAT is a national, standardized, admission test required by most pharmacy programs. Only Idaho State University and Oregon State University in the Northwest do not require PCAT. The daylong test is administered three times each year at multiple sites across the United States. More information on the PCAT, testing sites, and dates may be found at www.PCATweb.info.

On-Campus Interview: Every pharmacy school requires an on-campus interview as part of the admission requirements. Schools typically extend offers for students to interview once the initial paper review of applications is completed. The on-campus interview provides applicants with the opportunity to demonstrate their unique skills beyond academic abilities demonstrated by individual course grades and GPA.

Historical Data On Applications, Entry Class Sizes, and Out-of-State Admissions: Table 6 presents the number of applications in 2007 (latest data available), entry class sizes in 2008, and percentage of non-residents in the 2008 entry class. These data should be considered when applying to programs.

The three major 4-year campuses, and some of the community campus, provide almost all of the pre-pharmacy courses required of these six schools. Table 7 presents these courses.

The same basic chemistry and biology courses are required for all schools, but required advanced biology courses vary significantly. Note the Oregon State University’s pre-pharmacy courses are listed in quarter hours.

Cautions: Pre-pharmacy requirements are generally increasing across the U.S. to require more advanced biological sciences and specific humanities and social sciences. Students should carefully monitor the pre-pharmacy requirements at the various universities under consideration. Given the competitiveness of pharmacy school admissions nation-wide, it is highly recommended that students apply to multiple schools.

UA Equivalent Courses: Table 7 presents the UA equivalent courses that would meet the pre-pharmacy requirements at the various programs. Specific courses for each major campus are given. The only course sequence that does not seem to be available is an intermediate level human anatomy and physiology sequence. Pharmacy schools need a course that builds on freshman college biology. The BIOL 111/112 sequence is a service course for the nursing and other allied health programs that does not have college biology as a pre-requisite. The courses should have an integrated lab each semester.
### Table 6: Pre-Pharmacy program Structure, Admission and Course Requirements of Selected Pharmacy Schools for Fall 2010

<table>
<thead>
<tr>
<th>Program Structure</th>
<th>Admission</th>
<th>Course Requirements</th>
<th>% Entry Class Size 2009</th>
<th>% Out-Of-State 2008</th>
<th>% Pre-pharmacy</th>
<th>Pre-Pharmacy Courses</th>
<th>Minimum Requirements</th>
<th>Entry Class Size 2009</th>
<th>Quarter</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Source: As seen in College Pharmacy, Pharmacy School Admission Requirements, 2009-2010
<table>
<thead>
<tr>
<th>Campus Course Numbers</th>
<th>Southeast</th>
<th>Anchorage</th>
<th>Fairbanks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Pharmacy Curriculum</strong></td>
<td><strong>Mathematics &amp; Statistics</strong></td>
<td><strong>Biological Sciences</strong></td>
<td><strong>Chemistry</strong></td>
</tr>
<tr>
<td>Calculus I</td>
<td>MATH A200</td>
<td>ENGL S101</td>
<td>BIOL A103</td>
</tr>
<tr>
<td>Statistical Methods</td>
<td>STAT A200</td>
<td>ENGL S105</td>
<td>BIOL A106</td>
</tr>
<tr>
<td>Precalculus</td>
<td>MATH F200</td>
<td>BIOL F115</td>
<td>BIOL A106</td>
</tr>
<tr>
<td>Calculus II</td>
<td>MATH F200</td>
<td>BIOL F115</td>
<td>BIOL A116</td>
</tr>
<tr>
<td>Calculus III</td>
<td>MATH F300</td>
<td>BIOL F116</td>
<td>BIOL A126</td>
</tr>
<tr>
<td>Linear Algebra</td>
<td>STAT F200</td>
<td>BIOL F116</td>
<td>BIOL A242</td>
</tr>
<tr>
<td>Statistics</td>
<td>STAT F200</td>
<td>BIOL F116</td>
<td>BIOL A242</td>
</tr>
</tbody>
</table>

**Table 7: Recommended Pre-Pharmacy Program At The University Of Alaska By Campus**
Cost of Pre-Pharmacy Education

Pre-pharmacy courses are part of the basic undergraduate program of a university; therefore the cost is typically full-time tuition and associated fees.

Table 8 presents the fall 2009 general university costs for full-time students completing either a 2 or 3 year pre-pharmacy curriculum at the UA and regional universities that have pharmacy programs. All campuses of the UA charge the same tuition ($141 for Lower Level/SCH). Idaho State and the University of Montana charge the same tuition for 12 or more credits per semester. Washington State and University of Washington charge the same tuition for 10-18 credits.

Assuming the pre-pharmacy program identified in Table 7 were required for the UA students, the total cost for the three years, assuming 18 SCH/semester, for in-state students would be comparable to Idaho State University and Oregon State University, approximately 1/3 less than either the University of Washington or Washington State University, and about 25%-35% more than the University of Montana and the University of Wyoming.

Table 8: Tuition For Full-Time Pre-Pharmacy Course Requirements In Regional Universities: Fall Semester 2009 (Excluding Mandatory Fees)

<table>
<thead>
<tr>
<th>Fall 2009 Tuition Assuming 18 SCH’s LL Undergraduate</th>
<th>UA</th>
<th>ID State</th>
<th>OR State</th>
<th>U Mt</th>
<th>WA State</th>
<th>U WA*</th>
<th>U WY</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2,538 (Computed Per SCH)</td>
<td>$2,484 (12 or More SCH)</td>
<td>$2,304 (Computed Per SCH)</td>
<td>$1,925 (12 or More SCH)</td>
<td>$3,800 (10-18 SCH)</td>
<td>$3,562 (Quarterly Converted To Semester)</td>
<td>$1,692 (Computed Per SCH)</td>
<td></td>
</tr>
</tbody>
</table>

*The University of Washington is on the quarter academic calendar. Average converted to semester basis.

Recommendations For UA Pre-Pharmacy Curriculum

**Recommendation 1**: Each 4-year campus should appoint a pre-pharmacy advisor and publish the contact information on their WEB site and academic program announcements.

The three designated individuals should be charged with the responsibility to remain current on pre-pharmacy course requirements of the major regional programs and any existing program that may develop a partnership with UA to provide potential UA undergraduates with the best available information in planning their curriculum.

**Recommendation 2**: The catalogues of each 4-year campus should include a section on pre-pharmacy that includes:

- Single, coordinated pre-pharmacy section listing the recommended UA courses on each campus; and
- A statement urging those students interested in pharmacy to consult with the designated pre-pharmacy advisor on their campus (associated community campus students should contact their 4-year campus pre-pharmacy advisor).
**Recommendation 3:** The three 4-year campuses should develop an intermediate level human anatomy and physiology course requiring freshman general biology.

This course may be team-taught between the three campuses via distance technology. The course should be recommended to students planning professional doctoral health education (Pre-Pharmacy, Pre-Medicine, Pre-Dentistry, Pre-Physical Therapy, and Pre-Occupational Therapy) rather than recommending BIOL 111/112 that is primarily focused to meet the needs for nursing, allied health, and other health students.

**Recommendation 4:** Given the size of the underserved population in Alaska, the UA should prepare a HSRA grant proposal to develop a program for academically capable Alaska students to enhance their preparation for admission to all doctoral health professions (Pharmacy, Medicine, Dentistry, Physical Therapy, Occupational Therapy).
SECTION 3 - POTENTIAL PARTNERSHIPS WITH OTHER INSTITUTIONS FOR DELIVERY OF PHARMACY EDUCATION INSIDE ALASKA

BACKGROUND

The Summary from Section 1 of this report identifies the long-standing—and likely continuing—pharmacist shortage in Alaska. While the UA can presently assist prospective students interested in pharmacy to efficiently complete their pre-professional requirements at the school (Section 2), it is unlikely that, without some intervention, a large number of Alaska residents will be able to study pharmacy as a career without relocating out-of-state. Thus, solely providing better counseling and pre-pharmacy programs at its institutions will not help the state resolve the continuing pharmacy manpower problem.

Alaska institutions are familiar with the model for medical education operated by the University of Washington College of Medicine in partnership with the states of Wyoming, Alaska, Montana, and Idaho (the WWAMI model). It permits students to attend classes and laboratories and complete introductory experiential education programs in-state for their first year, and then complete the second year of classes, laboratories, and introductory experiential education on the main campus in Seattle. Students may choose to complete years three and four in one of the WWAMI states, including Alaska, but most remain in Seattle for a majority of their Advanced Professional Practice Experiences (APPEs).

While there is not a multi-state, WWAMI-type program for pharmacy education, distributed pharmacy education is prevalent among the nation’s existing schools. And there is the possibility of developing such a multi-state consortium if others in the region have an interest. As depicted in Figure 1, there are typically three strategies used by existing schools: (1) asynchronous classes without routine faculty contact; (2) remote classrooms of recorded live classes with faculty in the remote classrooms; and (3) streaming video classes between distant classrooms with student access to faculty on both campuses. The accrediting agency requires that all three delivery strategies be equivalent courses and achieve equivalent curricular outcomes. All three course delivery models also require the students complete the same laboratories, small group discussions, and experiential education programs regardless of their physical location. The major differences between the three models are the degree to which students are required to be independent learners, and the engagement of the faculty directly with the students beyond planning and delivering content.

Figure 1: Models Of Distance Education In Pharmacy
The most prevalent model is the live streaming video model. Using video conferencing technology, instructors from multiple campuses may teach to any of the main and satellite campuses and students participate as they would in a live class. The distant campuses have faculty members on-site who mentor and counsel students, conduct small groups, provide some of the experiential education, and manage student services, experiential program placement, and any resulting problems. Even though the classes are live, the lectures are typically archived and made available for students to review and study across all campuses.

The second most prevalent model is the on-line courses model in which lectures are pre-recorded (typically the day before) and then uploaded to servers for the distant campus students to download and view together as a class at a distant site. Viewing the lectures together in a classroom setting promotes student interaction and helps students remain on-schedule, a constant problem with asynchronous courses. The distant classes have resident faculty to work directly with the students in support of their education. These programs are generally transitioning to live streaming video as the reliability is improving and cost of streaming video technology is decreasing.

The on-line courses delivery model where courses are delivered asynchronously and essentially on-demand is in the minority. Students may be physically located some distance from each other and set their own schedule for watching the recorded lectures. However, students must return to campus for laboratories and typically are required to find their own suitable experiential education sites. These sites must meet the basic requirements of the school program and agree to deliver the structured experiential education. Only Creighton University delivers its entire Pharm.D. degree using this model; however, a number of universities offer the postbaccalaureate Pharm.D. degree to practicing pharmacists in this manner. This delivery mode requires extremely mature learners to be able to succeed in an extremely demanding curriculum.

In-State Delivery of Pharmacy Education versus Out-of-State Pharmacy Education

Historically, Alaska has depended primarily on its residents applying to out-of-state universities where pharmacy education is offered—and where they must compete with in-state and other out-of-state students—and then, if accepted, relocating to that state for at least the four professional years. As depicted in Table 5 (Section 1), there have been very few Alaska residents over the last five years who have matriculated to an out-of-state pharmacy school. More concerning, the recent trend is a decreasing number year over year at a time that student demand for pharmacy education has never been higher. In large part, this likely explains why Alaska has experienced a long-standing shortage of pharmacists. Although there are no sources of data to determine the number of residents who studied out-of-state and then returned to practice in Alaska, the general consensus is that students tend to locate close to where they complete their education and thus don’t return to Alaska. If this is true, then it is logical that conducting—at a minimum—the last

49 Some (not all) institutions that use the Live Streaming Video model include Auburn, Idaho State, Nova Southeastern, Arizona, New Mexico, Minnesota, Tennessee, Texas, and Texas Tech.

50 Some (not all) institutions that use the on-line video class model include the Universities of Florida, and Maryland.

51 At one time, Alaska participated in the Western Interstate Consortium for Higher Education program assisting students secure financial assistance for pharmacy school. This program (approximately 5 seats for all 4 years of professional education) and is no longer available.
year of full-time experiential education in Alaska will increase the likelihood that Alaska residents who study pharmacy will be more likely to remain in the state to practice.

Beyond the professional workforce needs of Alaska, there is a generally identified responsibility for a state to provide its citizens with the opportunity to access careers of their own choosing. There is both a humanistic and an economic benefit for Alaska residents to be able to study pharmacy in Alaska. Being able to remain in-state helps maintain family support units, reduces the cost of obtaining education, and provides a productive worker for the state in a highly beneficial, essential, and high paying profession. The human and economic cost of relocating out-of-state can be significant and beyond the resources of many residents.

If UA were to partner with an existing accredited pharmacy program experienced in satellite program delivery, a satellite campus delivery model for local access to pharmacy education could provide Alaska residents with an opportunity to remain in Alaska to complete their entire pharmacy degree.

The student’s costs for an in-state satellite program versus an relocating out-of-state would likely be less. Students save travel costs and perhaps some living expenses, depending on where they live in Alaska and where they may relocate to study. A partnership program where the student completes class on-campus out-of-state, but returns to Alaska for their final year (APPE experiences) would also be costly for the student. Thus, a partnership program may be a good alternative compared to requiring the student to relocate out-of-state to complete their degree.

IN-ALASKA RESOURCES TO SUPPORT A PARTNERSHIP PROGRAM

The resources required from the UA to support a partnership for an Alaska satellite program with an accredited pharmacy school would depend upon the details of the program what could be negotiated with a partner institution. The following paragraphs describe the needs and the range of possibilities.

**Alaska Faculty and Preceptors**

Pharmacy faculty are typically comprised of five types: biomedical scientists; pharmaceutical scientists; administrative, behavioral, and social scientists; practitioner faculty; and preceptor faculty.\(^{52}\)

Biomedical sciences faculty typically teach portions of the pre-pharmacy and professional curriculum dealing with human body functions, structures, and pathologies. Pharmaceutical sciences faculty teach the structure, physical/chemical properties, dosage form delivery systems, mechanisms of action, and toxicology of medications. Administrative, behavioral and social sciences faculty teach the management of health care systems and pharmacy personnel, health behavior, and patient education. Practitioner faculty teaches the therapeutics, patient monitoring, and practice skills. Preceptor faculty provide structured learning activities and assessments of

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\(^{52}\) Preceptors are practitioners employed full or part time by a patient care entity with appropriate credentials to teach students the abilities and know to care for patients and operate delivery systems. Preceptors are typically paid on a part-time, or volunteer basis if supported by their employer.
students within a patient care delivery process to reinforce the students’ didactic and laboratory studies and to help students develop knowledge and confidence in providing patient care.

The UA system has biomedical sciences faculty members on both the Anchorage and Fairbanks campuses and within the WWAMI program. UA Fairbanks (UAF) has been designated as the doctoral degree granting institution (research focused degrees) and is the only regionally accredited institution at that level. At least two of the scientists at Fairbanks have had experience as pharmacy faculty and several others have research programs focused within the pharmaceutical sciences or related biomedical sciences. In addition, there are several collaborative Ph.D. programs between UAF and UA Anchorage (UAA); the most notable for pharmacy education is the Biological Sciences Ph.D. UAA is also the host for the WWAMI program and offers the first year biomedical sciences and other required courses for 20 medical students that matriculate to UAA concurrently with the UWA College of Medicine.

There is only one licensed pharmacy practitioner faculty member at UAA—Ms. Debra Cieplak, R.Ph.—appointed to the UAA faculty, and she coordinates the Pharmacy Technology Program.

There are a relatively large number of Alaska preceptors who are currently providing experiential education for out-of-state pharmacy programs. The data in Table 9 provides a sampling of these practitioners (as of early July 2009) at the major health systems as reported in on-site interviews by the Consultant at the largest hospitals and selected clinics. Three sites have pharmacy students year-round: Alaska Native Medical Center, Providence Alaska Medical Center, and Chief Andrew Isaac Health Center. Two other institutions have students typically during the summer months: Bartlett Regional Hospital and Fairbanks Memorial Hospital.

The two Anchorage institutions have extensive pharmacy education programs (Pharm.D. and post graduate Pharmacy Practice Residencies) and are capable of supporting a comprehensive core and elective experiential program comparable to many accredited Pharm.D. program. There are also core hospital pharmacy practice experiences available in Anchorage, Fairbanks, Juneau, and Soldotna (and perhaps other locations) that would easily qualify for the requisite APPE requirements. Several of the state’s chronic and primary care clinics, particularly Alaska Native clinics, are among the most innovative training programs in the U.S. and currently serve as sites for a large number of out-of-state schools. These same clinics would be among the sites for student training in chronic disease management and ambulatory care pharmacy services.

In conversations with preceptors, it was clear that the support received from their out-of-state affiliations is minimal. Most of the sites have formal affiliation agreements, which are an accreditation requirement; however, students’ primary interest is the “Alaska Experience,” rather than selecting Alaska sites to determine the state is a place they would like to practice after graduation. While there are certainly some students who have returned to Alaska after graduation as a result of their rotation experiences, the out-of-state programs have done little to support the pharmacy students’ education or provided training or support to develop the clinical education skills of Alaska’s preceptors. None of the preceptors interviewed reported routine on-site

53 Due to time constraints, the Consultant was not able to visit any Alaska military or Veterans Affairs medical facilities. Typically, these are excellent training sites for pharmacy students.
inspections by an out-of-state school, which is also an accrediting agency requirement, nor interactions with the faculty.

It is difficult to estimate the head count of pharmacy students who complete one or more rotations in Alaska. Students are not required to register with the Alaska Board of Pharmacy for short, in-state experiences, and rotations may be only 4, 5 or 6 weeks in duration, depending on the schools’ requirements. From the main institutional and clinic sites presented in Table 9, a typical year has approximately 50 student rotations in Alaska. Most sites have the capacity for more rotations if the rotations were scheduled and supported by the pharmacy school. Students who come to Alaska do so as a matter of preference rather than being assigned by their school and are often left to rely upon their own initiative to find adequate clinical experiences.

The question that remains is this: what is the current capacity to support IPPEs (Introductory Professional Practice Experiences) and APPEs within Alaska?

IPPEs must total 300 clock hours with approximately half of those hours spent in community and hospital pharmacies. The remaining 150 hours may be “service learning” time spent in health-related organizations or patient care sites without a pharmacy. The in-pharmacy experiences typically include “shadowing” and related learning activities (e.g., answering drug information questions, interviewing patients, shadowing other health care professionals, etc.) that are intended to build basic skills. These experiences may be spread over the first three professional years, which means the demands placed upon pharmacy practice environments is not great and the training can therefore be provided for class sizes of at least 30 students.

Table 10 estimates the capacity for APPEs in the facilities surveyed (see footnote 48). While the four basic and required rotations—Inpatient Adult Medicine, Health System Practice, Ambulatory Care Clinic, and Community Pharmacy Practice—are common to all accredited pharmacy schools, there may be other core experiences that would have to be developed, depending on the partner program’s requirements. Some of the more common core experiences are Drug Information, which requires students to complete two adult inpatient medicine rotations, and pediatrics. The total number of hours is 1,400, but some programs may require additional time.

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54 For example, the six Texas pharmacy schools require 7 or 8 rotations of 6 weeks each, or between 1,680 or 1,920 hours.
<table>
<thead>
<tr>
<th>Facility/City</th>
<th>Size</th>
<th># of Pharmacists/Preceptors</th>
<th>Average # of Student Rotations Annually</th>
<th>Type Of Rotations/Services Offered For Training Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska Native Medical Center – Anchorage -Acute</td>
<td>151 Beds</td>
<td>56 (USPHS) 2 PGY1</td>
<td>2 Students all 12 Months</td>
<td>Chronic Disease Mgt Clinics Pediatrics Critical Care Telepharmacy Primary Care Adult Medicine Oncology Outpatient Rural Hospital Practice</td>
</tr>
<tr>
<td>Care Hospital - Primary/Specialty Clinics - Amb</td>
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<tr>
<td>Care Pharmacy - Telepharmacy Center - Southcentral</td>
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<tr>
<td>Foundation Clinics -8 Regional Rural Hospital/Clinics</td>
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<tr>
<td>Anchorage Neighborhood Health Clinic – Anchorage</td>
<td>Clinic</td>
<td>0 (Like To Start)</td>
<td>None</td>
<td>Primary Care</td>
</tr>
<tr>
<td>–Community Health Clinic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anchorage Regional Hospital – Anchorage</td>
<td>250 Beds</td>
<td>8</td>
<td>None Now (In Past)</td>
<td>Hospital Practice</td>
</tr>
<tr>
<td>Alaska Regional Hospital – Anchorage</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Providence Alaska Medical Center-Anchorage -Acute</td>
<td>361 Beds</td>
<td>29 + 2 PGY1 &amp; 1 PGY2 (Onc)</td>
<td>3-4/Rotation Throughout Year (4-5</td>
<td>Cardiology Oncology Adult Med Pediatrics Hospital Practice</td>
</tr>
<tr>
<td>Care Hospital - Children’s Hospital - Psychiatric</td>
<td></td>
<td></td>
<td>Week Rotations) Extensive of List Schools</td>
<td></td>
</tr>
<tr>
<td>Hospital -2 Retail Pharmacies -Family Medicine</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Residency Clinic -4 Regional Hospitals</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Bartlett Regional Hospital – Juneau</td>
<td>51 Beds</td>
<td>5</td>
<td>2-3/Year (Summer)</td>
<td>Hospital Practice</td>
</tr>
<tr>
<td>Central Peninsula Hospital - Soldotna</td>
<td>49 Beds</td>
<td>5 + 1 Part Time</td>
<td>1-2/Year Summers</td>
<td>Hospital Practice</td>
</tr>
<tr>
<td>Fairbanks Memorial Hospital – Fairbanks -</td>
<td>152 Beds</td>
<td>15</td>
<td>2-5/Year</td>
<td>Hospital Practice</td>
</tr>
<tr>
<td>Acute Care Hospital -Cardiology Clinic -</td>
<td>88 LTC</td>
<td>9-Hospital 4-Outpatient</td>
<td>Typically Only 1 At Time</td>
<td>Outpatient Pharmacy Nursing Home Consultation</td>
</tr>
<tr>
<td>Outpatient Pharmacy -Long Term Care</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chief Andrew Isaac Health Center - Fairbanks</td>
<td>Clinic</td>
<td>3</td>
<td>1 Student All Year</td>
<td>Primary Care</td>
</tr>
</tbody>
</table>
From this analysis, it appears that the UA, using the Anchorage community primarily as the hub for experiential education with optional rotations in Fairbanks and other communities, could currently provide quality APPEs to at least 30 students/year. This would require the major facilities to focus on UA students and limit the number of out-of-state students accepted. Each facility administrator interviewed by the Consultant agreed that if there were an Alaska program (either an accredited school or a partnership program integrated with the UA), they would give preference to Alaska students.

Table 10: Current Capacity For APPE's in Alaska

<table>
<thead>
<tr>
<th>Core Advance Professional Practice Experiences</th>
<th>Facilities Capable Of Currently Providing</th>
<th>Number of Rotation Annually (Assumes 6 Week Rotations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Adult Medicine</td>
<td>Alaska Native Medical Ctr 2 Students/Rotation x 4/Yr</td>
<td></td>
</tr>
<tr>
<td>Hospital Practice</td>
<td>Providence Alaska Medical Center 2 Students/Rotation x 4/Yr</td>
<td></td>
</tr>
<tr>
<td>Hospital Practice</td>
<td>Alaska Regional Hospital 1 Student/Rotation x 5/Yr</td>
<td></td>
</tr>
<tr>
<td>Hospital Practice</td>
<td>Alaska Native Medical Ctr 1 Student/Rotation x 5/Yr</td>
<td></td>
</tr>
<tr>
<td>Hospital Practice</td>
<td>Providence Alaska Medical Center 1 Student/Rotation x 5/Yr</td>
<td></td>
</tr>
<tr>
<td>Hospital Practice</td>
<td>Fairbanks Memorial Hosp 1 Student/Rotation x 5/Yr</td>
<td></td>
</tr>
<tr>
<td>Ambulatory Care Clinic (Primary Care)</td>
<td>Alaska Native Medical Ctr 2 Students/Rotation x 4/Yr</td>
<td></td>
</tr>
<tr>
<td>Ambulatory Care Clinic (Primary Care)</td>
<td>SouthCentral Foundation 2 Students/Rotation x 4/Yr</td>
<td></td>
</tr>
<tr>
<td>Ambulatory Care Clinic (Primary Care)</td>
<td>Anchorage VA Clinic 2 Students/Rotation x 3/Yr</td>
<td></td>
</tr>
<tr>
<td>Ambulatory Care Clinic (Primary Care)</td>
<td>Chief Isaac Health Center 2 Students/Rotation x 5/Yr</td>
<td></td>
</tr>
<tr>
<td>Community Pharmacy Practice</td>
<td>Various Independent &amp; Chain Pharmacies 1 Student/Rotation x 15-20/Year</td>
<td></td>
</tr>
<tr>
<td>Community Pharmacy Practice</td>
<td>Fairbanks Memorial 1 Student/Rotation x 6/Yr</td>
<td></td>
</tr>
<tr>
<td>Community Pharmacy Practice</td>
<td>Providence Alaska Medical Center 1 Student/Rotation x 5/Yr</td>
<td></td>
</tr>
<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Cardiology Providence Alaska Medical Center 1 Student/Rotation x 3/Yr</td>
<td></td>
</tr>
<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Oncology Providence Alaska Medical Center 1 Student/Rotation x 6/Yr</td>
<td></td>
</tr>
<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Oncology Alaska Native Medical Ctr 1 Student/Rotation x 4/Yr</td>
<td></td>
</tr>
<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Pediatrics Providence Alaska Medical Center 1 Student/Rotation x 4/Yr</td>
<td></td>
</tr>
<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Pediatrics Alaska Native Medical Ctr 1 Student/Rotation x 4/Yr</td>
<td></td>
</tr>
<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Adv Chronic Disease Mgt Anchorage VA Clinic 1 Student/Rotation x 3/Yr</td>
<td></td>
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<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Adv Chronic Disease Mgt Chief Isaac Health Center 1 Student/Rotation x 3/Yr</td>
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<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Rural Hospital Practice Bartlett Regional Hospital 1 Student/Rotation x 5/Yr</td>
<td></td>
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<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Rural Hospital Practice Central Peninsula Hospital 1 Student/Rotation x 6/Yr</td>
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</tr>
<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Practice Management Fairbanks Memorial Hosp 1 Student/Rotation x 4/Yr</td>
<td></td>
</tr>
<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Nursing Home Consultant Central Peninsula Hospital 1 Student/Rotation x 6/Yr</td>
<td></td>
</tr>
<tr>
<td>Elective Experiences (2 Rotations/Student)</td>
<td>Nursing Home Consultant Fairbanks Memorial Hosp 1 Student/Rotation x 4/Yr</td>
<td></td>
</tr>
</tbody>
</table>

Source: On-site Interviews by the Consultant
Contemporary pharmacy education typically has four unique educational pedagogies that determine facility needs. First, every pharmacy program uses the traditional classroom didactic instruction to deliver the content required of pharmacy students. In establishing regional or satellite campuses, many programs use distance education technology—either synchronous or asynchronous—linking students to receive the didactic lectures. A few programs are converting to learning strategies that blend asynchronous learning of content with live classroom sessions where students learn and demonstrate basic levels of learning through on-line instructional units with assessment, then engage with the professor and their fellow students in class sessions designed to develop higher learning levels rather than teach content. The goal is to seek mastery levels learning.

Second, laboratory instruction is used to build basic practice skills before extensive experiential courses are undertaken. While fewer in number and length, most programs have laboratory sessions that teach basic medication dispensing, medication compounding, sterile techniques for preparing injectables and ophthalmic medications, patient counseling, and physical assessment and history taking.

Third, clinical simulation, while not universal, is a growing component of most pharmacy programs. Simulated real-world environments with other health profession students, standardized patients, and computer-controlled manikins seek to develop practice skills and interprofessional teamwork abilities. Many pharmacy educators anticipate that clinical simulations will become a more central part of core pharmacy education within the next several years as more institutions build simulation centers for their health professions programs.

Fourth, experiential (clinical) education is a central component of pharmacy programs and extends across multiple years of the program. The minimum number of hours currently required by the accrediting body is divided between IPPEs during the first three professional years (300 clock hours) and APPEs during the final professional year (1,400 clock hours). The standards limit experiential education to 40 hours/week.

Each of these pedagogies requires physical facilities and infrastructure to support the program. If the UA were to partner with another existing program to deliver their accredited program in Alaska, the accrediting agency would consider the Alaska program a satellite of the accredited program and subject it to the same facility requirements as the main program. Depending on the specifications of the contract, UA could be required to provide some or all of the facilities and infrastructure to deliver the program. Thus, the UA would need classrooms, one or more laboratories, simulation facilities, and access to patient care facilities (hospitals, clinics, nursing homes, community pharmacies, etc.).

The infrastructure needs for any pharmacy program includes high-speed Internet connectivity and access to a comprehensive medical library. On-line, specialized pharmacy drug information resources are also critical, but are not typically found in a medical library. Both of these resources are available in Alaska. The Alaska Regional Medical Library, supplemented with

55 Bloom, Benjamin S. *Taxonomy of Educational Objectives* (1956). Allyn and Bacon, Boston, MA. Copyright (c) 1984 by Pearson Education.
some pharmacy-specific resources, would be a significant resource for the program. High-speed Internet connectivity is widely available on the three main campuses and the community campus.

A special infrastructure resource that may be critical for a partnership would be distance education technology compatible with the UA system technology. Courses may simply be online, but live conferencing access would be extremely important for faculty collaboration between UA and the partner institution. It could also be an invaluable resource for students because they would have the ability to obtain tutoring and consult with partner program instructors in areas where the student may be experiencing difficulty.

Criteria to Include In A Partnership Negotiation

To achieve the best options for Alaska students, developing a partnership with an accredited pharmacy program should be an active negotiation conducted between the UA and an accredited institution through a Request for Proposal (RFP). Important criteria that should be considered:

Recruitment, Admission, Advising, and Student Services

What will be the role of the UA in student recruitment and at what level will it participate in the admission process and the on-going advisement of the students? An attractive partnership would be one where the UA actively advertises the program, interviews the applicants and provides input to the admissions committee, and provides advising and student services for the Alaska students during their four years of education. In essence, the UA should take ownership of the program and provide support to the Alaska students, subject to the rules and regulations of the partner’s accredited program.

Faculty Appointments and Support For UA Faculty

The UA should have a sciences faculty member and a pharmacy practitioner faculty member integrated into the partner program faculty. The courses in a quality pharmacy program will be rigorous for even the best students. While the partnering institution must provide a mechanism through which students can interact with their faculty, having access to local faculty with subject matter expertise and intimate knowledge of the curriculum would be a significant benefit for Alaska students and help to ensure their academic success.

The partner institution should also be expected to develop a relationship with the UA faculty. UA faculty should receive adjunct appointments to the partner’s pharmacy school faculty and be provided reasonable support and resources in relation to the partner’s other pharmacy faculty. Reasonable support should include at least one trip per year to the partner’s campus so as to remain current with the program’s operations and curriculum changes. It should also include reimbursed travel expenses to attend the American Association of Colleges of Pharmacy (AACP) Annual Meeting to allow UA adjunct faculty to stay informed about contemporary pharmacy education. The strength of the partnership will be determined by the support and engagement of UA faculty as they seek to meet the needs of the partner school and the Alaska students.

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Accreditation standards require all students be interviewed prior to admissions. Most programs would require the student to travel to the home campus for an interview, but having a local interview with input to the admissions committee who must make the final decision would benefit the students and the partner institution.
Appointment of A Partnership Director (Co-coordinator) With At Least Annual In-Alaska Site Visits

The partner school should have a faculty member responsible for overseeing the UA partnership. This person should occupy an appropriate administrative level within the partner school to address appropriate issues related to the partnership administration. The requirements of this person must include at least one annual visit to the UA campus to maintain relationships with the students, faculty, and UA administration. Resources should be provided for more frequent visits should problems arise.

Hiring Of Faculty and Staff To Support The Satellite Program

A faculty member’s engagement with the program should not be “professional service,” but rather a paid responsibility.

When fully functional there should be at least two staff members located at the UA to support the program. One should be responsible for student services and the other should be responsible for experiential program placement and oversight. These staff members must be integrated into the operations of the partner school so that Alaska students receive fair treatment and full opportunities to succeed.

Facilities and Infrastructure Provided By the UA and the Partner

Unless the program requires the students to return to the partner campus for laboratories and assessment, every effort should be made to provide the entire program in Alaska. This will require the UA to identify appropriate classrooms, laboratories, and administrative and faculty offices and to provide access to infrastructure.

Students should be treated as other UA students with access to libraries, learning centers, student facilities, and intramural and intercollegiate athletic programs. There should be professional societies, travel to professional meetings and other professionalization support designed to ensure a well-rounded professional education for the students.

Site Selection, Preceptor Training, Quality Assurance Program, and Student Rotation Coordination For IPPE’s and APPE’s

Professional practice experiences are a critical element within all pharmacy programs. These experiences should be supported in-Alaska by staff and faculty administrators who are trained and supported by the partner school to achieve standardization among the Alaska sites and the partner program sites. Alaska preceptors should be supported with structured learning activities, assessment, and quality assurance programs to ensure Alaska students receive a comparable, quality education and adequate training.

Financial Arrangements The financial arrangements for the program are critical. If the partner is a public institution, would it agree to provide students with a reduced tuition equivalent to the level of financial support the UA provides to the program or would the Alaska students be considered out-of-state students and charged a typical non-resident tuition? If the partner collects full out-of-state tuition, it should be expected to fund the operational costs for the UA to make its program compare favorably to the program made available to the partner’s on-campus student.
Estimated Budget For A Partnership Program

It is difficult to estimate a budget for a program without knowing the instructional costs for the partner institution. However, the following financial analysis assumes:

1. The UA pharmacy program will enroll 20 students each year;
2. The UA will provide the in-state facilities, including two classrooms, one laboratory, faculty and staff offices, technology support, medical library access, and typical campus student services (e.g. health services, counseling, etc.).
3. The program will be based at only one UA campus, likely Anchorage, to reduce the program’s operating costs and student travel for experiential education, though it could include state-wide delivery of experiential education;
4. UA will assume responsibility for actively advertising the program, interviewing the applicants and providing input to the Pharm.D. admissions committee, and providing advising and pharmacy program student services for the Alaska students during their 4 years of education in accordance with the accredited partner’s rules and regulations;
5. The partner program will deliver the courses to the UA classrooms and provide the Alaska receiving site with required classroom technology;
6. The UA will appoint and pay faculty advisors for each UA class, these individuals will be content experts, capable of assisting learning by the UA students;
7. UA faculty will be appointed to adjunct status within the partner program institution, which will include the placement of UA faculty in relevant committees. The partner program will also provide at least one paid trip each year for faculty members, the student services staff member, and the experiential program staff member to the partner’s main campus for annual retreats focused on Pharm.D. curriculum issues;
8. The relevant department chairs and dean of the partner program will make at least one annual visit to the UA campus at the partner program’s expense to meet with students, faculty, and staff to facilitate program issues that will arise;
9. The UA will hire practitioner faculty to conduct many of the core APPE in AK health facilities. The partner program will be responsible to provide preceptor training for Alaska preceptors equivalent to that provided to the partner’s on-campus program preceptors;
10. The UA staff will follow the requirements and procedures of the partner program in experiential site and preceptor selection, learning activities, and assessment;
11. Alaska preceptors and/or sites will be paid by the UA $1,000 per rotation for those experiences not provided by full or part-time UA faculty; and
12. The UA will enroll the Alaska students in the host UA university and collect the usual student fees for on-campus services and for the specialized services provided to the pharmacy program.

The data in Table 11 summarizes the estimated cost for this partnership program. This analysis assumes that the student will pay the UA the same tuition and fees charged to WWAMI students, with the UA paying the partner program an annual per capita fee to provide the didactic instruction, direction, and program accreditation. With 20 students admitted each year to the 4-year program, the program would have a steady state revenue of $2M including tuition and fees, less need-based scholarships. The start-up of the program would cost $663,708, with an approximately $1.3M-$1.8M short fall of revenue over expenses. Thus, the state would need to appropriate these funds to make the University whole. This assumes a total FTE UA faculty of 9 and staff of 4, plus the Regional Dean-UA Program administrator. Average direct cost per student would be approximately $50K/year, including a per capita payment to the partner accredited program of $15,000 per year. Facility costs would not be a factor if the UA could identify two classrooms, offices and a laboratory within its existing facilities.
Some of the **Pros** for developing a partnership with an accredited program include:

- With forward planning in FY10, a program could likely be open by FY11.
- The initial start-up costs for the program would not be as great as starting an accredited program (see later discussion in Section 4).
- The partner program would provide Alaska students immediate accreditation.
- The entire program could be completed without requiring students to spend time out-of-state.
- Alaska residents would be able to study pharmacy in-state at a lower cost than relocating out-of-state.
- Over several years, the number of students admitted – 20 per class – would have a significant impact on manpower needs of the state once they graduated.
- Having UA faculty and staff support the students would provide a comparable education to other health professions programs; the partnership program would be a resource for the UA and State.
- The UA would assist the health care industry in Alaska develop more extensive pharmacist patient care services by having advanced trained faculty actively practice in-Alaska; the program would add to the infrastructure of the State.

Some of the **Cons** for developing a partnership with an accredited program include:

- A partnership program would likely not develop the UA’s research expertise in pharmaceutical sciences.
- Being dependent on an out-of-state accredited program, there are potential problems that could develop for both the UA and the students that could make the program untenable. If this were to happen, the matriculated students would need to relocate to the partner’s campus to complete the program.
- The program would require an appropriation of from $1.3M-$1.8M each year.
- The UA will need to identify two classrooms and a laboratory that would need to be assigned to Pharmacy education.
### TABLE 11: University of Alaska Pharmacy Partnership Program Pro Forma Summary

#### FINANCIAL SUMMARY

<table>
<thead>
<tr>
<th>OPERATING BUDGET</th>
<th>Startup FY11</th>
<th>Enroll 1st Class FY12</th>
<th>Steady State FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>Cumulative</th>
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<tr>
<td>Revenue for UA</td>
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<td>Tuition and Fee Revenue</td>
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<td>Instructional Salaries and Benefits</td>
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#### Direct Operating Result

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<th>Startup FY11</th>
<th>Enroll 1st Class FY12</th>
<th>Steady State FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>Cumulative</th>
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</thead>
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<td>-$663,708</td>
<td>-$1,341,408</td>
<td>-$1,179,340</td>
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#### Cumulative Direct Operating Results

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<th>Startup FY11</th>
<th>Enroll 1st Class FY12</th>
<th>Steady State FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>Cumulative</th>
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<td>-$4,664,622</td>
<td>-$6,393,983</td>
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</table>

#### CAPITAL BUDGET

| Facilities Design | $0 | $0 |
| Facilities Construction | $0 | $0 |
| Furnishings for Building (12% of Construction) | $0 | $0 |
| Distance Education Classroom Technology | $150,000 | $150,000 |
| Instructional Lab Equipment ($9k/station @ 10 stations) | $0 | $0,000 |
| Simulation Lab Equipment ($5k/station @ 25 stations) | $0 | $0 |
| Basic Research Lab Equipment ($40k/lab @ 2 labs) | $0 | $0 |
| TOTAL CAPITAL | $150,000 | $230,000 | $380,000 |

#### STATISTICS

| Enrollment | 20 | 59 | 58 | 77 |
| Tuition Rate ("Ad") P1-P4 + 10-Week Summer P4 Year | $18,465 | $19,388 | $20,357 | $29,500 |
| Fee Rate (Ad) | $4,085 | $4,919 | $5,116 | $5,372 |
| Student/Faculty Ratio | 5.00 | 7.80 | 8.29 | 8.56 |
| Direct Cost per Student | $90,035 | $54,300 | $49,757 | $49,754 |
| Net Operating Results per Student | -$67,070 | -$30,237 | -$24,487 | -$23,238 |
| Administrative Faculty FTEs | 1.0 | 1.0 | 1.0 | 1.0 |
| Administrative Staff FTEs | 3.0 | 4.0 | 4.0 | 4.0 |
| Faculty FTEs | 4.0 | 5.0 | 7.0 | 9.0 |
Summary of Potential Partnership For In-Alaska Pharmacy Education

A partnership with an accredited pharmacy school is a viable model for Alaska to provide pharmacy education to its residents at a reasonable cost. It may be an interim step to developing an accredited UA program, but it could require an approximate $1.3M-$1.8M appropriations with an approximately $660,000 start-up cost.

If a partnership program is selected as the desired strategy to initiate pharmacy education in Alaska, it should be carefully planned and the partner institution must be carefully selected to provide Alaska students and practice sites with a quality, comprehensive program that meets the needs of the students and the state.

Analysis of Partnership Opportunities With Creighton University

Of the more than 117 pharmacy schools, Creighton University offers the nation’s only on-line generally distance-delivered Pharm.D. program pathway for the entry-level degree. The program admitted its first class in 2001 and Creighton University’s program is fully accredited. Students located nation-wide may complete the didactic courses by viewing recordings of live classes on-line on their personal schedules, but laboratories are completed on campus in Omaha during the P2 and P3 summers. There are three laboratory courses requiring 6 weeks of in Omaha attendance. All testing is performed at the same time with distance and on-campus students. Distance students use a commercial testing service. There are live, small group conferencing sessions for several of the courses. Course instructors in Omaha are available to students on request to handle student questions and the School has arranged for content experts across the nation (mostly faculty at other pharmacy schools) to assist students with particularly difficult material. Although the program requires an extremely mature and gifted student to handle rigorous curricular content on their own study, the attrition rate for the distance program is comparable to the on-campus students, probably due to older, more mature student that is admitted to the program. Most of the distance students are second career seekers and have previously completed a baccalaureate degree.

IPPE courses during the first and second year are focused in the last week of the semesters. Approximately 52% of the 300 hours of contact time is in pharmacies, precepted by local pharmacists in the students’ communities. The remaining 48% of the hours are in service learning related to health care services. APPE courses are full-time experiences in the fourth professional year. Creighton has an extensive network of preceptors nation-wide that provide these rotations, typically without charge to either the student or the School. When a distance student cannot find suitable local preceptor, they must relocate to Omaha to meet the curriculum requirements. Approximately 25% of the distance students relocate to Omaha. There are criteria for APPE sites and preceptors, but a representative of the School does not travel to the sites to validate and provide on-site quality assurance; these activities are generally handled via telephone conferences by the School’s experiential education staff. The program requires students to complete eight 5-week rotations with core experiences in Acute Adult Medicine, Ambulatory Care, Inpatient Hospital Practice, Community Pharmacy Practice, and Drug Information. The latter rotation may be completed on-line.

57 Information obtained by the Consultant from a personal interview with Dr. Chris Bradberry, September 2009.
The tuition and fees for 2009/2010 is $15,310 per semester for distance program students. The program has 11 semesters of instruction, including the special summer laboratory sessions in Omaha and full-time (40 week) fourth professional year. Creighton offers federal financial aid to distance students. At the current tuition and fee structure, the program would cost a student more than $150,000 in tuition and fees assuming the student can complete the program at home, but not including travel and living costs for the Omaha portion of the curriculum. Program costs are comparable between the on-campus and distance pathways when the fee structures are included in total costs.

Dr. Chris Bradberry, Dean of the Creighton School, has proposed to establish a program for the UA similar in design as the current Occupational Therapy Program. Creighton would provide:

- A guaranteed number (no more than 10 students initially) of UA students’ admission, depending on their qualifications – UA students would not have to compete with other applicants nation-wide;
- In-Alaska applicant interviews and orientation sessions would be provided by Creighton in cooperation with UA faculty for those admitted to the program;
- In-Alaska experiential rotations, depending on the availability and collaboration with various sites and qualified preceptors.

The UA would be required to hire a student services staff person to coordinate with Creighton, provide the students with on-campus access to the library and other student services. UA would not have to provide instructional laboratories as it current does with the partner OT program. Creighton is willing to negotiate a tuition discount in the early years to establish the program and the fees required of UA would be similar to those required for the OT program.

Some of the Pros for developing a partnership with Creighton University include:

- The program could begin by fall 2010 if negotiations could be concluded by October 2009.
- The UA could secure pharmacy education for ten of its residents annually with less than $150,000/year costs to the UA.
- Since the degree would be offered by Creighton University, the issue of the Anchorage campus’ regional accreditation to offer doctoral degrees would be moot.
- UAA has experience working with the Creighton University School of Pharmacy and Health Professions for Occupational Therapy.
- Creighton has an on-line didactic curriculum for individual learners and multiple years of experiences in nation-wide delivery. The program is fully accredited.
- Creighton is willing to increase its entry class size to admit up to 10 Alaska students if the applicants meet Creighton’s admission criteria and compete effectively for the positions.
- The delivery of the program could be statewide, if Alaska preceptors will participate, meaning Alaska students would not be required to relocate to one of the UA campuses, except for the final year of APPE.
- Anchorage clinical sites could be sufficient to secure APPE rotations.

AK residents currently have the opportunity to apply directly to Creighton University and they currently have three AK students enrolled. Applicants outside a contractual program with Creighton would be required to compete with other applicants.
• Since the program is designed to support students from Omaha rather than in-Alaska, the UA would have no faculty or facility costs associated with the program other than a staff member and office.

Some of the Cons for developing a partnership with Creighton University include:

• The proposed program would not be a program of UA; UA would simply be facilitating Creighton in offering its current distance program to Alaska residents.

• The Creighton distance program is designed for independent learners who are able to discipline themselves to study rigorous content, seeking faculty assistance on-line rather than face-to-face. Students lacking strong academic preparation and disciplined study habits may struggle because they won’t have ready access to faculty and fellow students to assist in their learning. (One way to mitigate this potential problem would be to require all UA students to meet on-campus to view the recorded lectures together, providing a classroom interaction, with UA providing an on-campus faculty coordinator who would be able to help students who may struggle.)

• The program would be expensive for Alaska students. Creighton’s tuition is among the highest in the U.S. and the added costs for annual summer laboratory sessions in Omaha would push annual costs for Alaska students to more than $40,000/year (this is based on FY10 tuition and fees; historically the tuition and fees have increased annually). If students were not able to secure in-Alaska APPE rotations, they would need to relocate to Omaha for part of their P4 year. This may not be as major of a factor for the initial students if Creighton would discount the tuition for UA pharmacy students as it does for the OT students, or UA could secure appropriations to provide AK students scholarships to reduce the costs.

• Students are essentially “on their own” to locate practice sites and preceptors for experiential education. Creighton provides little on-site quality control and preceptors. (This could be mitigated if UAA pharmacy staff member were to secure local preceptors for the students.)

• The program does not provide a pharmacy school presence for Alaska. Professional schools provide more than just degrees for a state; they can be an important resource for its practitioners and industry.

Conclusion of Section 3

The partnership model for pharmacy education in Alaska is viable. The Creighton proposal would be one low-cost and quick access strategy. A partnership with Creighton on another program would provide the opportunity for Alaska residents to receive a pharmacy degree and generate a meaningful increase in pharmacy manpower for the state.

Recommendation 5: The UA System should develop a Request For Proposals (RFP) to solicit a partnership with an existing accredited program that has experience in operating satellite campuses and that will meet the unique needs of Alaska students. If a suitable partner is not identified, it should consider assisting Creighton University in enrolling Alaska students in that institution’s distance program.
SECTION 4 – PROSPECTS FOR DEVELOPING A PHARMACY SCHOOL IN ALASKA

BACKGROUND
The UA is considering the prospects of establishing an accredited, entry-professional pharmacy degree program whose outcome would be a Doctor of Pharmacy (Pharm.D.) degree. The Pharm.D. is the only recognized degree for state licensure in the U.S. This section of the document focuses on all aspects of developing a pharmacy school, should that be the option chosen by the University of Alaska to pursue. Recommendations 6-23 related exclusively to this option.

Accreditation of Professional Pharmacy Degree Programs

The Pharm.D. is classified by the U.S. Department of Education as a first-professional degree; the purpose is to educate and train practitioners. The lone federally recognized accrediting agency for the Pharm.D. degree program is the Accrediting Council for Pharmaceutical Education (ACPE) (Council). All state and territorial licensing agencies require applicants to complete a Pharm.D. degree program from an ACPE accredited program to be eligible for licensure.

Pharm.D. program accreditation provided by the ACPE does not supersed the regional accreditation for the hosting institution. The institution must have achieved accreditation status from its regional accrediting agency to offer professional doctorate programs prior to receiving consideration by ACPE for Pharm.D. programmatic accreditation. The Northwest Commission on Colleges and Universities (NWCCU) is the relevant regional body for granting UA the authority to offer professional doctoral education.

The current ACPE accreditation standards and guidelines, known as Standards 2007, were revised in January 2006 and are the relevant ACPE accreditation standards for this report. The next comprehensive revision of the standards is not expected until 2012 at the earliest. Requirements may be changed at either of the Council’s bi-annual meetings.

First-professional degrees represent a category of qualifications in professional subject areas that require students to have previously completed specified undergraduate coursework and/or degrees before enrolling. They are considered graduate-level programs in the U.S. system because the follow prior undergraduate studies, but they are in fact first degrees in these professional subjects. Holders of first-professional degrees are considered to have an entry-level qualification and may undertake graduate study in these professional fields following the award of the first-professional degree. Several of these degrees use the term “doctor” in the title, but these degrees do not contain an independent research component or require a dissertation (thesis) and should not be confused with PhD degrees or other research doctorates. A first-professional degree is an award that requires completion of a program that meets all of the following criteria: (1) completion of the academic requirements to begin practice in the profession; (2) at least 2 years of college work prior to entering the program; and (3) a total of at least 6 academic years of college work to complete the degree program, including prior required college work plus the length of the professional program itself. All first-professional degree programs are closely regulated by recognized professional and specialized accrediting agencies. First-professional degrees may be awarded in the following 10 fields: Doctor of Chiropractic (D.C. or D.C.M.), Doctor of Dental Science (D.D.S.) or Doctor of Dental Medicine (D.M.D.), Doctor of Jurisprudence or Jurist Doctor (J.D.), Doctor of Medicine (M.D.), Doctor of Optometry (O.D.), Doctor of Osteopathic Medicine/Osteopathy (D.O.), Doctor of Pharmacy (Pharm.D.), Doctor of Podiatric Medicine/Podiatry (D.P.M., D.P., or Pod.D.), Master of Divinity (M.Div.), Master of Hebrew Letters (M.H.L.) or Rabbinical Ordination (Rav), Doctor of Veterinary Medicine (D.V.M.). US Department of Education, 2008. Other practice doctorate degrees not included are Nursing Practice (requires a BSN) and Physical Therapy.

Foreign graduates who have graduated from international pharmacy schools meeting certain criteria may complete an “equivalency” examination to demonstrate that their knowledge and abilities achieve the minimum standards of ACPE accredited programs.
The Pharm.D. is a first-professional doctorate degree program requiring at least four academic years of professional education preceded by at least two years of defined pre-professional courses. The pre-professional curriculum may be completed at any regionally accredited college or university. The minimum course of study to award the Pharm.D. (pre-professional and professional program) must be at least six academic years; however many institutions have revised their pre-professional coursework to require at least three years, thereby making the Pharm.D. degree essentially a seven-year post-secondary education program.

Under Standards 2007, ACPE requires a three-step process for a new Pharm.D. program to attain full accreditation at an institution that does not currently offer pharmacy education. When an institution makes the decision to initiate a pharmacy program, the first step in the accreditation process begins with the appointment of a Founding Dean. Under the Dean's leadership, the institution files a comprehensive development plan and a six-year pro forma budget while designing the program application to meet the current Accreditation Standards and Guidelines. Once the College has recruited its senior leadership team—typically composed of the dean, one or more assistant/associate deans and usually two department or division chairs—the ACPE will evaluate the application. If the paper review appears to meet the basic requirements, ACPE will schedule an on-campus visit by a site-team typically comprised of: one or more Council members; a Dean from another pharmacy program at an institution similar to the one proposing the new program; a faculty member from another similar pharmacy school; and one or more ACPE staff members. The licensing board in the state where the institution is located is also invited to send a member to participate in the site-team’s review.

The purposes of the initial visit is to review and validate the details of the institution’s plan and assess its compliance with the accreditation standards and guidelines. A major focus of the visit is to evaluate the institution's ability to successfully execute its plan. The Council at its next meeting forwards the site-team report, along with any subsequent comments offered by the institution in response to the report’s findings, to ACPE for official consideration. ACPE may either award Pre-candidate Status to the institution, indicating that the Council has accepted the institution's plan, or it may refer the application back to the institution with specific issues that must be resolved. Once the Council awards an institution Pre-candidate Status, the institution may admit its founding class. However, a program with a Pre-candidate accreditation designation is not yet considered officially "accredited." Graduates from a program having only Pre-candidate Status are not eligible to apply for licensure in any state or territory that requires graduation from an ACPE accredited program.

After the first class is enrolled, the Council will typically send another site-team to the campus near the end of the first year to evaluate how the institution has implemented its plan during the initial stages of matriculation for its founding class. The Council, who will consider awarding Candidate Status to the program, will again review the site-team report. Graduates of a program with Candidate Status are recognized as having received their degrees from an "accredited"

ACPE only meets twice a year-January and June-to review professional degree programs. Initial pre-candidate applications are considered only in the June meetings.
program and will thus be eligible to apply for licensure in any state or territory that requires graduation from an ACPE accredited program.\footnote{According to United States Department of Education regulations, a program can be in \textit{Candidate Status} for up to five years. If full accreditation has not been achieved within the designated time-period, the program must begin the development cycle again.}

The Council will require the institution to present written reports throughout its early developmental years and will often request annual presentations by the dean and institution officials. If necessary, the Council may schedule additional focused, on-site visits during the three- to five-year period in which the program is under \textit{Candidate Status}. Regular on-site visits occur approximately 18 months apart, assuming the institution is proceeding according to its plan.

In the spring semester prior to the graduation of the founding class, the Council will authorize another major on-site review to evaluate whether the institution has fully implemented its plan. Following the graduation of the first class, the Council will consider awarding full accreditation, which designates the program as \textit{Accredited}.

The cycle for accredited programs can range from one to six years. Typically, the initial term for a newly formed program is two years, which is followed by a four-year extension. This places the program “in cycle” for a six-year full term accreditation.

The Council recently established a new common timetable for considering new program applications. The initial draft pre-candidate application, along with the application fee, must be received by March 1. The final version is due by May 15 so the application can be considered at the June meeting. Between March and June, ACPE staff will conduct an on-campus consultation visit as part of the pre-candidate application paper review. If authorized, an on-site evaluation will be conducted in the fall and the report from the review will go before the Council for consideration at the following January meeting. Table 12 illustrates the typical timetable required for an institution to begin a program, assuming there are no problems in the pre-candidate application review within the normal cycle. This process requires approximately 18 months after the dean and leadership team arrive on-campus and prior to matriculation of the first students.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|l|}
\hline
\textbf{Task/Milestone} & \textbf{Typical No. of Months} & \textbf{Cumulative Months (Assumes 6/2008 Initiation)} & \textbf{Comments} \\
\hline
Regents/Trustee Formal Action To Authorize Program Development & 0 & 0 & The Institution May Seek Regional Accreditation Agency’s Consultation Before Trustee Action \\
Advertise, Recruit and Relocate Founding Dean & 9 & 9 & \textit{Concurrent Activities} \\
Secure Regional Accreditation Agency Approval to Offer Degree & 9 & & \textit{Concurrent Activities}; Assuming the Institution is Classified by Regional Accreditation Agency To \\
\hline
\end{tabular}
\caption{Typical Timeline to Achieve a New Accredited Pharmacy program}
\end{table}
During 2009, the application fee for the initial review of the application for pre-candidate status is $25,000. This includes a one-day, on-site staff consultation. If authorized for a full on-site visit, the fee during 2009 is $18,800 plus $5,000 for each satellite campus. The 2009 annual sustaining fee for accredited programs is $5,840 plus $1,000/satellite campus. The local board of pharmacy is responsible for the expenses associated with its member's participation.

**Strategy Implemented to Develop the Report**

The contract's Scope of Work guided the Consultant in preparing this report. He began the analysis by reviewing the web sites, undergraduate catalogues, faculty listings, and other published information for the three Alaska universities. In addition, two on-campus visits were conducted: the first in late May 2009 and a second in early July 2009.
The purpose of the initial visit was to review the overall UAA campus, tour several key buildings—including classrooms and laboratories—and meet with University and System officials. The Consultant made a presentation that explained the practices of contemporary pharmacy education and presented an overview of the accreditation requirements to the Pharmacy Education Committee and other interested parties.

The objectives of the second visit, which was five days in duration, were to: (1) evaluate the Fairbanks and Juneau campus resources and support systems upon which a pharmacy program could be developed; and (2) assess potential regional sites for advanced professional education. The Consultant conducted in-depth interviews with various administrative and academic leaders, including the Associate Vice President for Health Programs for the System, Provosts of both the Anchorage and Fairbanks universities, members of the Pharmacy Education Committee, several interested faculty members and staff from the three main academic units (Anchorage, Fairbanks, and Juneau).

The information gleaned from these visits and interviews was applied to basic criteria employed by the Consultant in previous assessments where he evaluated an institution’s readiness for developing a professional pharmacy educational program. The overall basis of this Study is formed by the Consultant’s general assessment of these criteria as applied to UA and one or more of its component universities.

After completing the assessment of institutional readiness, the Consultant undertook a careful consideration of the various elements of Standards 2007 and subsequent amendments, and necessary steps that must be undertaken by the System or one of its universities to meet important standards and guidelines relevant to forming a new accredited program. Special consideration was given to planning adequate physical facilities and developing a seven-year pro forma budget to guide resource development and allocation. This process was accomplished by first establishing a “model” curriculum that served as the basis for developing a staffing plan, facilities plan, and a pro forma expense and potential revenue budget.

The curriculum plan utilized information from several sources:
- Pre-professional requirements for NWCCU accredited pharmacy schools;
- The existing course offerings of the various universities within the UA system, as presented in the 2009 catalogues and posted on the three university web sites, and the general teaching schedule for these courses as described by the various department chairs;
- The ACPE Standards 2007 and accreditation rubrics; and
- Forward projecting elements of professional pharmacy education found nationwide at leading pharmacy programs.

As such, the curriculum plan evaluation employs a “stake-in-the-ground” approach to identify resource needs rather than an approach that is built around the most appropriate curriculum for a new Pharm.D. program. Both the curriculum and the associated resources are intended to be a mid-level estimate; an accredited program could be developed for less cost, but allocating the resources identified in this report should yield a competitive professional program within the NWAAS region.
Finally, an important decision-making element was added to the overall assessment. This element—an implementation plan that includes a timeline the Consultant considers to be reasonable for program development—assumes the System will ultimately decide to move forward with supporting a pharmacy program.

**FINDINGS OF THE CONSULTANT – FEASIBILITY OF A PROFESSIONAL PHARMACY PROGRAM AT ONE OR MORE OF THE UA UNIVERSITIES**

The Consultant employs the following criteria when he evaluates an institution’s readiness for developing a Pharm.D program:

- Is the Mission of the institution inclusive of health professions education?
- Does the institution’s strategic plan include a consideration of pharmacy as an institutional priority?
- Is there strong institutional leadership in place who understand the unique requirements for health professions programs and who are committed to creating an environment for a new pharmacy program to develop, grow, and succeed?
- Is there an on-campus champion to pilot the program’s early development until a Founding Dean can be recruited?
- Do existing campus culture support health professions education and the unique educational models required of clinically-oriented professional education?
- Is there a long-term commitment to providing the necessary resources that are crucial to achieving a quality pharmacy program?
- Do appropriate facilities exist—or are there realistic plans in place or under development to secure appropriate facilities—for pharmacy education?
- Are there adequate library, instructional resources, and information technology services in-place to support a pharmacy program?
- Are there an adequate number of potential sites readily available for introductory and advanced experiential education?

Almost no institution, with the possible exception of major health sciences centers, initially meets every criterion. This in no way means that the institution cannot develop these essential elements as part of its strategic planning and implement processes to ready itself for pharmacy education. By focusing on the current state of readiness at UA, including these elements that are essential for an institution to be optimally successful in mounting a new first-professional doctoral program, the President, chancellors, and other leaders can use these findings to guide their strategic planning efforts if a decision is ultimately made to pursue a pharmacy degree program.

The Consultant was charged with considering the program to be a UAA, a UAF, or a “combined” program. Since ACPE standards require that only a single, regionally accredited university may be accredited to offer the Pharm.D. degree, the focus of the Study was to address the readiness of both universities to achieve a successful and accredited program. The opportunities for collaboration across universities—or the operation of one as a satellite program—were also addressed when appropriate.
Mission of the Institution

Criteria – The institution’s mission, as approved by its governing board, should be inclusive of a commitment to health professions programs as a part of the overall academic offerings of the institution.

An Institution’s mission guides its basic philosophy and focus. The community of faculty, administrators, and governing board must periodically analyze and—when appropriate—revise the mission. When circumstances and opportunities change, abrupt and radical changes without a broad consensus among the Institution’s governing board, administration, and faculty should not be undertaken without careful consideration.

Health professions education, particularly professional doctorate programs like pharmacy, should be clearly identified, or at least articulated, within the institution’s mission and its goals.

Findings

UAA’s mission statement:

The mission of the University of Alaska Anchorage is to discover and disseminate knowledge through teaching, research, engagement and creative expression.

Located in Anchorage and community campuses in Southcentral Alaska, UAA is committed to serving the higher education needs of the state, its communities and its diverse peoples.

The University of Alaska Anchorage is an open access university with academic programs leading to occupational endorsements; undergraduate and graduate certificates; and associate’s, baccalaureate and graduate degrees in a rich, diverse and inclusive environment.83

Through its College of Health and Human Welfare, the UAA health professions degree programs include: B.S. degrees in Health Sciences, Human Services, Medical Technology (Laboratory), Nursing, Psychology, and Physician Assistance (in collaboration with the University of Washington), and Social Work. It offers Master’s degrees in Nursing; Public Health (non-accredited); and Social Work. The College also hosts the Creighton University Occupational Therapy program. The College of Arts and Sciences hosts the WWAMI medical education program of the University of Washington and has psychology undergraduate and masters’ degrees. It also collaborates with the UAF to offer a clinical psychology degree. The Community and Technology College also provides more than 12 allied health certificate programs, including pharmacy technician. The University also has, or is building collaborations in several health research units focused on the health needs of Alaska unique populations.

UAF’s mission statement:

The University of Alaska Fairbanks, the nation’s northernmost Land, Sea and Space Grant university and international research center, advances and disseminates knowledge through teaching, research and public service with an emphasis on Alaska, the circumpolar North and their diverse peoples. UAF--America's arctic university--promotes academic excellence, student success and lifelong learning.84

83 www.UA.Alaska.edu
84 www.UAF.edu
The UAF does not list any health professions degree programs at its main campus. It collaborates with the UAA’s associate degree in nursing and there are several certificate and associate degree allied health programs on its community and technical college campus. UAF also has the Center for Alaska Native Health Research (CANHR) within its College of Rural and Community Development. The three areas of focus for CANHR include: (1) Prevention and reduction of health disparities in indigenous communities; (2) Cultural processes awareness - how cultural variables influence the understanding of disease expression in Alaska Natives; and (3) Community-based participatory research methods. UAF also has several researchers engaged in human health.

Assessment
To date, the UAA has taken the leadership in the development of the state’s health professions programming, including the necessary biological sciences faculty to support these programs. It has developed a small number of biomedical scientists to support the first year of the WWAMI medical program, along with other biomedical researchers. It has been responsible for collaborative programs at the first-professional doctoral level delivered by out-of-state universities. Being located in the state’s largest population region with the tertiary health systems and specialized medical clinics, UAA has been the appropriate institution to develop the programs that are dependent on affiliations with health systems to meet the curricular needs of these students as prescribed by the professional accrediting agencies.

Beyond the technical training for health careers’ programs that is provided by its associated community and technical college campus, the UAF has not focused either its undergraduate or graduate programming on preparing health professionals. With a small, but growing, faculty research initiative and “capacity building” grants from the National Institutes of Health, it is developing the scientific expertise required to support graduate and first-professional doctoral health professions education.

Strategic Planning
Criteria – The Institution’s strategic planning process must include an analysis for planning and financing a new pharmacy academic program.

Accrediting bodies and good business practices necessitate that significant changes in the allocation of efforts and resources be carefully analyzed and prioritized within the overall needs, wants, and goals of an institution. Quickly conceived and/or inadequately analyzed program expansion is discouraged because the new program’s impact on existing missions, goals, objectives, and priorities can be significant. This is particularly true with an expensive and transformational new program like professional pharmacy education.
**Findings**
Pharmacy education is not an element in either the UAA or UAF strategic plans (goals). In interviewing the provosts at both institutions, pharmacy is a program under consideration. UAA views transitioning to professional doctorates as an evolutionary development of the institution. Pharmacy could be the first professional doctorate program or the second, behind Nursing. For Fairbanks, its goal is to increase extramural research funding in biomedical sciences. It views a pharmacy program as a solidifying curriculum that can pull together more advanced professional and graduate education with a small, but growing biomedical sciences research program.

**Assessment**
The Regents, System administrators, and the leadership of the two main universities are struggling with the issue of placement of first-professional doctoral programs for health professionals. The State’s major health care center is based in the Anchorage MSA and this institution presently has authority for the state’s existing health professions programs, but only at the undergraduate and masters’ level. UAA is also the State’s host for medical education, a linkage that would strengthen pharmacy education. However, UAA is not approved either by the Regents nor NWCCU for doctoral programs.

Conversely, UAF clearly has the research focused doctoral degree mission, NWCCU accreditation for doctoral education, and Ph.D. programs in-place that would strengthen health professions education. However, Fairbanks is a smaller city with a limited number of the health systems that are essential across multiple professional years of pharmacy programs. Therefore, establishing professional doctorate health programs at UAF presents significant logistical issues for program delivery.

**Committed Institutional Leadership**
Criteria – *Institutional leadership, from the governing board and president or chancellor to the chief academic officers, must consider professional pharmacy education development to be an institutional priority and display a commitment to providing the required resources and efforts.*

Successful health professions education requires strong, effective, experienced health professionals and administrators with a deep understanding of both the academic culture and the demands of busy health systems and practitioners. The University must develop and nurture relationships that allow integration with the daily operations of health providers. It must also form supportive relationships with health systems administrators that will provide the health professions students the level of experiences that are required to develop future practitioners and secure programmatic accreditation. The key to academic programmatic success clearly lies within the strength and long-term commitment of the University and its students to these external engagements.

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Nursing, Public Health, and the responsibility for collaborative programs with the University of Washington for Medicine and Physician Assistant, and Creighton University for Occupational Therapy.
To successfully establish and operate a professional doctorate pharmacy program, institution leadership at every level must be committed to the long-term needs of the new program. Typically, it requires roughly ten to twelve years of support before a new program of this magnitude can achieve the level of maturity necessary to ensure its own long-term stability.\(^6\)

Success in this endeavor will require close and supportive collaboration from all leaders and leadership levels within the institution. The program must be given a priority in resource allocation until it achieves full-term, six-year accreditation. The accrediting bodies (ACPE and NWCCU) will carefully monitor the program’s development, and if the new program ceases to be an institutional priority, full accreditation status will likely be jeopardized.

**Findings**
The UA Associate Vice President—Ms. Karen Perdue—presently guides the UA System’s Health Professions programming. She is a strong, transforming leader who has a long history of successful service and development within the Alaska Health industry. UAA’s leader and facilitator in Health Professions educational development is Vice Provost Jan Harris, another experienced and effective leader. UAF does not have an administrator dedicated to health professions program development, but Dr. Marvin Schulte, Associate Professor of Biochemistry, has experience as a faculty member in a pharmacy school and has been joined by Dr. Thomas Kuhn (Assistant Professor of Biochemistry) and Dr. Joan Braddock (Dean of the College of Natural Sciences and Mathematics) in actively supporting the development of a pharmacy program at the Fairbanks campus.

The position of the UAA and UAF Boards of Regents, Presidents, and chancellors regarding the issue of a pharmacy program development is unknown to the Consultant at this time.

**Assessment**
The System-level guidance of Ms. Perdue is critical to the development of a pharmacy educational program. She has the internal support among her peers and the leadership skills and experience within the health community to be successful in developing a pharmacy program should this endeavor become a goal of the UA.

### On-Campus Champion Before A Founding Dean Can Be Recruited

Criteria – The institution should have an on-campus champion who is committed to promoting the new pharmacy program, fostering its development and assisting the Founding Dean in integrating the pharmacy education program into the institution’s culture.

Any new mission-expanding initiative requires a champion if it is to be successful. This role will eventually be assumed by the program’s Founding Dean; however, the development of a new

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\(^6\) Typically, it takes two or more years to develop the program before the initial class is admitted. Students must complete the four-year professional program before the initial full accreditation can be awarded, but new programs generally receive only a two-year term before being carefully reviewed again by the Council. It is not until the first full-term accreditation is typically awarded at the next cycle, six years after graduating its Founding class, that a program achieves maturity sufficient to ensure its sustainability; thus, the observation of “ten to twelve years” to achieve stability
academic program requires significant institutional strategic development before the institution is ready to recruit a Founding Dean.

Institutional administrators are typically busy people and often do not have sufficient time to focus on developing basic strategies while maintaining their current assignments. They should be kept well informed and be the decision-makers who define the basic mission, structure, and values that will guide the new program administrators. However, without some initiating strategies the institution will likely be unable to communicate its vision effectively when seeking to recruit new leadership.

Findings
The overall System champion for pharmacy must be Ms. Karen Perdue. Depending on the campus chosen to develop the program, another champion will likely need to be identified.

Assessment
It is too early to identify a pharmacy program champion, as System analysis is still in the early stages.

A Campus Culture of Health Professions Education
Criteria – *The institution should have a supportive culture for health professions education.*

Health professions education occupies a unique standing among an institution’s academic offerings in many important ways. Their uniqueness is due primarily to: (1) the professional and accreditation mandates for faculty self-governance; (2) the intense resource allocation required per student, relative to other students even within the institution’s sciences departments; and (3) the need for a basic understanding of—and support for—academic programs such as pharmacy that emphasize both education and training.

Most academic programs that require a significant training component for the degree also provide the training experiences through external and often adjunct faculty. Professional practice experiences require a core of clinical faculty members who must have a commitment to patient care service apart from their academic assignments. In other words, these faculty members teach students as part of their own patient care services. This translates into hiring clinical faculty members who are generally 12-month employees and are paid salaries that are competitive with other similarly credentialed pharmacy practitioners. They also require significant recognition and support for their patient care accomplishments as they move toward promotion and tenure. This generally sets health professions faculty members apart from most other faculty members who engage in scholarship and traditional instruction and can create inter-institutional conflicts if the differences are not well understood and accepted.

Findings
As identified earlier, UAF does not currently offer health professions programs. UAA currently offers multiple baccalaureate health professions programs in its College of Health and Social Welfare, and four masters’ degrees (Nursing, Psychology, Social Work, and Public Health). It also coordinates collaborative programs in Medicine, Physician Assistant, Speech-Language Pathology and Occupational Therapy.
**Assessment**
The appropriate time to educate existing faculty as to the role and function of a health professions program, its unique programmatic accreditation, and the typical workloads and compensation for its faculty members is before professional program faculty are recruited to the institution. Because a culture of health professions education is not deeply established at either universities of the UA at this time, these issues need to be communicated comprehensively to— and well understood by—the existing faculty and administration.

**A Long-Term Commitment of Adequate Resources to Achieve a Quality Program**

Criteria – *The institution must demonstrate a long-term commitment of adequate resources to achieve and maintain a quality professional program.*

To achieve accreditation, the institution will be required to demonstrate it has the financial resources in reserve to support enrolled students if, for some unexpected reason, the tuition and appropriations does not achieve pro forma targets.

Resources are interpreted in a broad sense and include faculty, support staff, and the appropriate operating budgets necessary to deliver the level of education and training required by the ACPE.

**Findings**
The UA, being a public institution, is primarily funded from state appropriations.

The existence of biomedical sciences faculty and courses to meet the pre-professional and professional curriculum requirements are key resources that would facilitate the development of a pharmacy program. At UAF, the major strength and focus of the biological sciences faculty is primarily animal, fish, and plant sciences. There are a small, but growing number of human-focused biomedical scientists that could provide many of the pre-pharmacy and professional courses in the biomedical sciences, particularly biochemistry and molecular biology. UAF offers both undergraduate and doctoral graduate degrees in these areas. Deficiencies include human anatomy, physiology, and pathology.

At UAA, the Biological Sciences provides undergraduate and doctoral graduate degrees in a collaborative program with UAF. A particularly important resource is the first-year WWAMI program. The Biological Sciences faculty currently offers to the WWAMI Medical students all of the first-year Biomedical Sciences courses included in the professional pharmacy curriculum.

**Assessment**
The development of a pharmacy program will require a Legislative commitment to provide the base funding. The amount of appropriations required will depend upon the size of the entry classes and the program mission, which must be primarily focused upon either professional education or a more comprehensive curriculum of professional and graduate education that includes the essential, but costly investment in faculty and graduate student research.
A shared first-year biomedical sciences program with the WWAMI students could play a significant and efficient role in the overall professional development of pharmacy students. It could also strengthen the Interprofessional Teamwork strategies that are central to both medical and pharmacy education nationally.

**Appropriate Facilities**

Criteria – *The institution must have a realistic and defined plan to identify, fund, and prepare the appropriate facilities relative to the intended entry class size. The facilities must be able to support the didactic, laboratory, small group, and clinical activities that are necessary to develop and maintain a quality program.*

The ACPE expects the institution to have a clearly defined plan and timetable for providing facilities adequate to support quality didactic, laboratory, small group, and clinical instruction, as well as office, administrative, and faculty scholarship facilities. The facilities plan must take into consideration the size of the entry class, as well as any anticipated growth in the entry class over the intermediate term.

The Council also considers clinical training facilities that are not under the control of the college or university in its overall assessment of physical facilities required for the program. Access and quality are two criteria that must be considered for the experiential education portion of the program.

**Findings**

The System’s administration clearly understands and supports the development of new or renovated facilities to house a pharmacy program. The financial officer presented a realistic understanding of alternative financing strategies for developing the required facilities for pharmacy education.

The UAA is funded for the first phase of a new health professions programs building. The UAA is currently planning the building’s second phase and has included some space for a pharmacy program. However, if UAA decides to move forward, it is likely more space than that which is currently allocated will be required to meet accreditation requirements. It recently opened a newly constructed “Integrated Sciences Building” providing additional instructional space, including a vivarium.

The UAF has not identified potential space for a pharmacy program. It has existing classrooms and laboratories and is also planning a life sciences building.

**Assessment**

If the System chooses to move forward in planning a pharmacy program, adequate campus facilities will have to be planned and developed.

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63 Institute of Medicine, *Health Professions Education: A Bridge to Quality*, 2003; and *Preventing Medication Errors: Quality Chasm Series*, 2006
Adequate Library and Instructional Resources

Criteria – The Institution is expected to provide adequate infrastructure relative to the intended entry class size and to ensure adequate support of a quality instructional program. The infrastructure must include a library, information technology, and the instructional resources services sufficient to support professional pharmacy education.

Pharmacists must possess the abilities—and resources—to retrieve, understand, and communicate information regarding the appropriate and safe use of prescription and nonprescription medications and devices. This is critical to the pharmacists’ ability to interact with patients and with other health care providers who prescribe medications. Therefore, a pharmacy program demands viable and ready access to the latest information concerning disease process and up-to-date clinical drug research.

The combination of a viable library and sufficient instructional resources, particularly electronic information technology, is essential to developing and maintaining a quality pharmacy program. It is considerably more efficient to add pharmacy and medical-focused resources and expertise to an existing infrastructure than to develop a new, separate infrastructure to support pharmacy faculty practice and education.

Findings

Alaska has an outstanding, state-wide health sciences library. It is staffed with medical librarians who have responsibilities for meeting the information resource needs of health professions providers and students. Essential pharmacy-specific databases and journals are not currently part of the collections.

Both universities have access to distance learning classroom technology, an electronic course management system for faculty and students, and state-of-the art information technology computer services.

Assessment

With the basic infrastructure for the medical library and information technology already in place, the addition of pharmacy holdings and resources will not be a significant barrier.

Potential Sites for Experiential Pharmacy Education

Criteria – The institution must have identified—and preferably secured—initial written affiliations with hospitals, extended care facilities, and ambulatory clinics to effectively conduct its introductory and advanced professional practice experiences relative to the intended entry class size.

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68 Accreditation standards require IPPE to develop basic practice skills, knowledge and attitudes over the first three years of the professional curriculum. APPE are required for the last year of the professional curriculum where the students develop their abilities to practice independently as a pharmacist. The IPPE must be at least 5% of the total curriculum and APPE must be at least 25% of the total curriculum. APPE must also be full-time. Institutions that do not own its own health care system must provide written affiliations with an appropriate number and mix of health care entities required to meet the core and elective introductory and advanced experiences relative to the number of students enrolled.
Perhaps the most critical element of professional pharmacy education is securing an adequate number of progressive pharmacy practice sites where faculty can establish a direct patient care practice and students can learn to apply their knowledge and develop their skills to be caring, patient-focused practitioners. While the typical community and hospital pharmacies can be utilized for IPPEs, most contemporary pharmacies have limited capacity to meet the criteria for APPEs. Because the entry class size at long-standing programs is steadily expanding, and the development of a large number of new programs (approximately 35 new pharmacy programs have been started in the U.S. since 2000) is rapidly underway, quality professional practice experiences are something every pharmacy program is constantly seeking to secure. This is the single most challenging element to pharmacy education in the United States today.

APPE must be conducted primarily by practitioner/educators faculty (full-time and adjunct) who have advanced practice credentials—a doctor of pharmacy degree and at least one-year of post-graduate residency training. Those faculty members who teach specialized practice areas (e.g., pediatrics, psychiatry, critical care, infectious diseases, etc.) are expected to have an additional year of specialty residency training.

Findings
Section 2 of this report documents the quantity and quality of Alaska’s health care facilities to support APPEs.

Assessment
Anchorage, particularly with the Alaska Native Health System and Providence Health System, has quality sites with patient care focused pharmacy practices. They have experience in teaching both pharmacy students from other states and advanced practice pharmacy post-graduate students (residents). These sites and preceptors, if dedicated to an in-state program in Alaska, could meet the basic requirements for both IPPEs and APPEs.

Fairbanks is significantly limited by its size and a relatively small health care industry. If a pharmacy program were to be developed on that campus, it could develop the sites for IPPEs, but it would require extensive collaborations with the facilities in Anchorage to deliver the APPEs.

Summary of Findings Regard Feasibility
Each of the main universities has achieved several of the criteria, but both have deficiencies related to achieving “readiness.” If its efforts to meet these deficiencies or—at a minimum—develop a strategic plan to meet these criteria are successful, it is feasible for either UAA or UAF to develop an accredited professional pharmacy program. Table 13 summarizes the “readiness” criteria of both universities.
The analysis indicates that the UAA, is the more feasible site for the professional program primarily because of its location relative to training sites and other health professions students.

### Table 13: Summary of “Readiness Criteria” for the UA Anchorage and Fairbanks

<table>
<thead>
<tr>
<th>Readiness Criteria</th>
<th>UA – Anchorage</th>
<th>UA Fairbanks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the Mission of the institution inclusive of health professions education? Does the Institution have doctoral degree granting status?</td>
<td>Yes E elevating the University to NWCCU Doctoral Status Would Be Required To Offer the Pharm.D. Degree</td>
<td>Yes Accredited For Doctoral Program</td>
</tr>
<tr>
<td>Does the institution’s strategic plan include a consideration of pharmacy as an institutional priority?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Is there strong institutional leadership in place who understand the unique requirements for health professions programs and who are committed to creating an environment for a new pharmacy program to develop, grow, and succeed?</td>
<td>Yes Karen Perdue For System Jan Harris For Campus</td>
<td>Yes Karen Perdue For System None Identified For Campus</td>
</tr>
<tr>
<td>Is there an on-campus champion to shepherd the program’s early development until a Founding Dean can be recruited?</td>
<td>Jan Harris, MSHA, DHA (Candidate) &amp; Deb Cieplak, B.S. Pharmacy, R.Ph.</td>
<td>Yes Marvin Schulte, Ph.D.</td>
</tr>
<tr>
<td>Does a campus culture of health professions education exist that supports the unique educational models required of clinically-oriented professional education?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Is there a long-term commitment of adequate resources that are necessary to achieve a quality program?</td>
<td>Requires Legislative Appropriations</td>
<td>Requires Legislative Appropriations</td>
</tr>
<tr>
<td>Do appropriate facilities exist—or are there realistic plans to secure appropriate facilities—for pharmacy education?</td>
<td>Yes Funding For A New Health Sciences Building &amp; Planning For A Second Phase Addition Integrated Sciences Building Hosts 1st Year WWAMI Medical Education</td>
<td>Not Yet Identified Planning For New Sciences Building The campus has significant facilities for faculty research</td>
</tr>
<tr>
<td>Are there adequate library, instructional resources and information technology services in-place to support a pharmacy program?</td>
<td>Yes State-wide Health Sciences Library</td>
<td>Yes State-wide Health Sciences Library</td>
</tr>
<tr>
<td>Are there an adequate number of potential sites readily available for introductory and advanced experiential education?</td>
<td>Yes Significant Contemporary Pharmacy Practice With Capacity</td>
<td>No Would Require Students To Spend At Least The P4 Year In Anchorage</td>
</tr>
</tbody>
</table>
This assessment is based primarily upon: 1) the existence of health professions programs for interprofessional teamwork development; 2) strong biomedical sciences faculty already instructing health professions students, particularly WWAMI Medical students; and 3) in-city access to an adequate number of potential sites for IPPE and APPE. UAA’s major deficiency is the lack of accreditation status for doctoral education.

If the pharmacy program were planned for both professional and graduate education, UAF would be able to develop the graduate and research programs in a shorter time frame. UAFs’ major deficiencies are: 1) its lack of other health professions programs; and 2) its remote location relative to an adequate number of APPE practice sites.

Depending upon the Regents’ desire to develop the pharmacy research and graduate programs, it is possible that a collaborative relationship between UAA and UAF for pharmacy could be forged. UAF could be the base for the pharmaceutical scientist within the University’s Ph.D. program accreditation, teaching both professional and graduate students. UAA could be the base of the practitioner faculty because they would be able to integrate within the Anchorage health care industry. The Regents will need to assign one university the responsibilities related to the degree program and designate the other university as a satellite of the accredited program. This is an internal matter which will be determined by the leadership of the UA universities and statewide system.

Separation of faculty, while feasible and found with many accredited schools, creates its own problems. The ACPE would carefully monitor the program and likely require that the professional program achieve a level of stability and maturity before allowing the University to develop a Ph.D. research-focused program utilizing faculty time.
ANALYSIS AND RECOMMENDATIONS TO MEET ACCREDITATION REQUIREMENTS

The following section of the Feasibility Study discusses each accreditation criterion of Standards 2007 and identifies key elements that the University must satisfy. The purpose of this section is to better inform administrators as to the standards the institution and program must meet to achieve a successful program, and to give guidance as the institution decides whether or not it desires to move forward with planning a new program.

The following paragraphs will highlight important elements of certain standards as they may apply to whichever University—the UAA or UAF—were to be selected to offer the degree program. For simplicity, this section of the Report will simply use UA to mean whichever Main Administrative Unit (Anchorage or Fairbanks) is selected to offer the program. Direct quotes from Standards 2007 are not separately referenced, but appear in italic. The complete language of Standards 2007 and its associated guidelines may be found at the ACPE web site (http://www.acpe-accredit.org).

Section 1 – Standards for Mission, Planning, and Evaluation

Standard 1 – School Mission and Goals

The program must first determine, and then define, its programmatic mission; establish its goals for education, research, and other scholarly activities; define its service and pharmacy practice objectives; and clearly identify its values. Each of these elements must be compatible with the mission of the University... but aligned with the profession’s vision for practice, research, and education.

These goals must include fundamental commitments of the College or School to the preparation of students who possess the competencies necessary for the provision of pharmacist-delivered patient care, including medication therapy management services, the advancement of the practice of pharmacy and its contributions to society, the pursuit of research and other scholarly activities, and the assessment and evaluation of desired outcomes.

Programs that meet this standard are those characterized as having:

- A dynamic, long-term mission with broad coverage that was created through group processes that includes faculty endorsement.
- A mission that is aligned with the institution’s mission.
- Goals that include fundamental commitments to preparing students who possess the competencies necessary to provide pharmacist-delivered patient care.

The importance of this Standard at this point in the analysis is the need for the UA-System to initially define the mission for pharmacy education in Alaska: is pharmacy to be primarily a professional education program devoted exclusively to preparing practitioners, or is it to have a

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As will be discussed under Standard 4, the ACPE will only accredit a single, regionally accredited university to award the degree. It cannot be the UA System, nor jointly shared by Anchorage and Fairbanks. This requirement does not preclude the establishment of a collaborative program between the two universities, even to the point of including both universities on the diploma.
dual mission of professional education plus graduate education that includes the requisite extramurally funded research? Both missions are necessary to a comprehensive program, but the extent of the research and graduate education mission should be decided upon early in the process as it will significantly influence the resource requirements, the type of faculty recruited, and—perhaps—which University is ultimately selected to offer the degree on a state-wide basis.

Recommendation 6 - The Board of Regents, upon the recommendation of the System Administration and in consultation with the universities’ administration, should determine the overall mission of pharmacy education early on in the development process. The mission should focus either exclusively upon professional education, or more broadly as a comprehensive program that will develop both a professional program (the Pharm.D.) and a graduate program (the Ph.D.) with commensurate research to support both levels of education.

ACPE Standards 2007 do not require a comprehensive mission that includes graduate education and the level of research to sustain that level of programming. In reality, the majority of accredited pharmacy programs nationally have professional education as their primary mission. Most public pharmacy schools at major universities operate under the more comprehensive mission that includes both professional and graduate education. Once the guiding mission is defined by the Regents and System administration, the Founding Dean will be responsible for developing a program mission statement and establishing goals and objectives for the program that are compatible within the Regents’ stated mission.

Standard 2 – Strategic Planning
The College or School of Pharmacy (hereafter called College or School) must develop, implement, and regularly revise a strategic plan to facilitate the advancement of its mission and goals. The strategic plan must be developed through an inclusive process that solicits input and review [from a broad group of stakeholders], have the support of the university administration, and be disseminated in summary form to key stakeholders.

Programs that meet this standard are characterized as having:
- A plan that was developed and endorsed by the faculty as a whole and is reviewed at least annually.
- A plan that lists all responsible participants and timelines.
- A plan that identifies planned substantive changes.
- A plan that the faculty are keenly aware of the areas that are assigned to them.
- Goals in the plan that are being accomplished.

Once the decision is made by the Regents to move forward with developing a pharmacy program, the basic tenets of the program’s strategic plan should be established by the University’s administration prior to recruiting a founding dean. Then, as UA advances its plans for establishing the new program, the Founding Dean will be required to develop the initial, comprehensive strategic plan that must be included in the Pre-candidate Application documents to ACPE.
Recommendation 7 – The UA’s administration should begin the strategic planning process for establishing the new pharmacy program prior to securing the Founding Dean. This will ensure that the new program’s developmental stages are founded upon the basic mission and tenants of the University; can serve as a communication vehicle for the entire University community; and will provide direction in the recruitment of the Founding Dean.

Some of the basic elements that should be considered during program strategic planning include:

- Organizational structure [see Recommendations 9, 10, 11, 15].
- Format and structure of the degree program [see Recommendation 18].
- Location of the physical facilities for the first three years of the program and location of major professional experiential sites [see Recommendation 23].
- Unique program focus (e.g., emphasis on underserved geographic regions, Alaska Native Health services, women’s health, geriatrics, etc.).
- Milestones and timetable for program development.

Once the Founding Dean has been appointed, he/she will develop the college’s or school’s specific mission, goals, and objectives that will drive the degree program development and will be required for the Council’s initial review.

Standard 3 – Evaluation of Achievement of Mission and Goals
The College or School must establish and implement an evaluation plan that assesses achievement of the mission and goals. The evaluation must measure the extent to which the desired outcomes of the professional degree program (including assessments of student learning and evaluation of the effectiveness of the curriculum) are being achieved. Likewise, the extent to which the desired outcomes of research and other scholarly activities, service and pharmacy practice program are being achieved must be measured. The program must use the analysis of process and outcome measures for continuous development and improvement of the professional degree program.

The Founding Dean, in establishing the new program, must carefully address this standard. A successful evaluation system developed and in place from the beginning of the new program planning process will provide the requisite documentation for both ACPE and NWCCU.

Section 2 – Standards for Organization and Administration

Standard 4 – Institutional Accreditation
The Institution...must have or, in the case of new programs, achieve full accreditation by a regional/institutional accreditation agency recognized by the US Department of Education. The accreditation must be at the level specified for the institution to offer first-professional doctoral education and must be approved or well into the approval process by the time the pre-candidate application is submitted to the Council.

Recommendation 8 – Once the decision to develop a pharmacy program is adopted, UA’s Chancellor should officially notify the NWCCU of the institution’s intention to develop pharmacy first-professional doctoral education and to undertake the required processes to secure documentation that expressly states the UA’s accreditation status with NWCCU permits it to offer professional doctoral degree programs.
This documentation must be included in the UA’s Pre-Candidate Application to the ACPE.

Currently, the UAF has NWCCU accreditation for doctoral programs; UAA is limited to masters’ programs and would need to secure requisite authority for doctoral degrees before ACPE would grant Pre-Candidate accreditation. In NWCCU terminology, establishing a new pharmacy program would be classified as a “substantive change” in UAA’s institutional accreditation. If UAF were to be the University of responsibility for offering the degree, it would need to notify NWCCU of its intention to develop a pharmacy program.

**Standard 5 – College or School and University Relationship**

The College or School must be an autonomous unit within the university structure and must be led by a dean. To maintain and advance the professional degree program, the university president [or chancellor in UA system] (or other university officials charged with final responsibility for The College or School) and the dean must collaborate to secure adequate financial, physical (teaching and research), faculty, staff, student, practice site, preceptor, library, technology, and administrative resources to meet all of the ACPE accreditation standards.

Programs that meet this standard are characterized as having:

- The College or School led by a dean.
- Established faculty bylaws and governance for the College or School.
- In control of its own curriculum.
- In control of its own admissions policy and hiring.
- Faculty serve on university-wide committees.

Both UA universities are currently organized with two programmatic academic units: colleges and schools. At the UAA, there are two levels of Schools: the first is the School of Engineering headed by a Dean who reports to the Provost; the second are the schools of Nursing and Social Work, both headed by a Director who reports to the Dean of the College of Health and Social Welfare. Deans head UAF schools (e.g. School of Management) and they are separate academic units reporting to the Provost.

While this Standard allows the UA to establish its pharmacy program within a college or school, the program must be headed by a Dean whose administrative level standing is equal to that of other deans within the University. The pharmacy Dean and faculty must control their own operations and programs.

**Recommendation 9** – The Regents should establish pharmacy as a separate academic unit of UA, headed by a dean and not part of another college.

**Recommendation 10** – The Dean of Pharmacy should be organizationally responsible to the Provost and on a level equivalent to the other academic unit deans. As the chief academic officer, the Provost should be charged with working collaboratively with the Dean in overall academic planning, meeting the various accreditation requirements, and in securing adequate resources to promote overall growth and development of the academic programs. The job description for the Dean should clearly delineate his duties and responsibilities. This reporting relationship must be clearly depicted in the UA’s organizational chart.

**Recommendation 11** – All UA policies regarding faculty governance, determination of the curriculum, admissions policies, and hiring of faculty
should be reviewed and revised, as appropriate, to provide pharmacy faculty and administration control over their own faculty bylaws, student admissions, curriculum and hiring standards. The pharmacy faculty should exercise this administrative control in conformance to and within the overall governance and structure of the University.

Standard 6 – College or School and other Administrative Relationships

The College or School, with the full support of the university, must develop suitable academic, research, and other scholarly activity, practice and service relationships; collaborations; and partnerships, within and outside the university to support and advance its mission and goals.

Programs that meet this standard are characterized as having demonstrated strong ties with other health professions programs and service units within the institution and with external health care services entities.

This standard recognizes that an institution, solely within its own resources, is not sufficient to achieve a broad mission that characterizes a pharmacy program; it must have collaborations and partners to be optimally successful. Of course, collaborations and partnerships require that something of value be contributed to the relationship by both entities. For an institution like UA, the most valuable resources it can contribute are the expertise and service of its faculty and the assistance of its students as they learn to function as pharmacy practitioners.

Successful relationship building typically begins early in new program development. Therefore, UA—once it makes a decision to move forward in developing a program—should establish an advisory committee of potential collaborators and partners.

Recommendation 12 – Once UA makes a formal decision to establish a pharmacy program, the Chancellor should identify interested parties (i.e., pharmacists from various areas of practice, representatives from state pharmacy and other health societies, and administrators of hospitals and large nursing homes) to serve the College or School as an advisor and partner in identifying and screening candidates for the Founding Dean.

A new pharmacy program could benefit from a close collaboration with UAA’s WWAMI medical program, its BSN and graduate Nursing programs, and the Physician Assistant program. Joint planning, interprofessional courses and experiential training, and joint extramural affiliations with clinical training sites could significantly benefit the development of each of these programs.
Recommendation 13 – UA administrators should consider effective ways for the health professions undergraduate, graduate and first-professional doctoral programs and the new pharmacy program to develop interprofessional education for their students, beginning in the first professional year and continuing throughout the four years. The health professions programs should be encouraged to work collaboratively, to cultivate and expand extramural clinical affiliations, and emphasize interprofessional teamwork as a central component to the training of all students.

Standard 7 – College or School Organization and Governance
The College or School must be organized and staffed to facilitate the accomplishment of its mission and goals. The College or School’s administration must have defined line of authority and responsibility, foster organizational unit development and collegiality, and allocate resources appropriately. The College or School must have published, updated governance documents, such as bylaws and policies and procedures, which have been generated by faculty consensus under the leadership of the dean in accordance with university regulations.

Programs that meet this standard are characterized as having:

- An organizational structure [that] has appropriate channels of communication and faculty, staff and students [that] are aware of the chain of command with The College or School.
- An organizational chart [that] accurately and appropriately reflects direct and indirect reporting structures.
- Specific review procedures...for each organizational unit...
- Current bylaws, approved and adopted by the faculty...they are functional, truly guiding the activities of the faculty who are observing the letter and spirit of the document.
- An organizational structure and staffing [that] facilitates achievement of the mission and goals.

In developing a new program, there will be the need to recruit both experienced faculty and new graduates. To recruit more experienced individuals—particularly in the wake of the present and significant competition a new program faces against other newly developing programs and long-standing schools and colleges—the Founding Dean must have the opportunity to offer significant roles to senior faculty from other institutions as an enticement to relocate to UA. The most favorable enticement to senior faculty is often the offer of meaningful leadership positions.

Most newly forming pharmacy programs are organized under a Dean’s Office that includes associate/assistant deans, each responsible for school-wide programmatic areas, and multiple departments (typically two) whose chairs are directly responsible for faculty recruitment, assignments, mentoring, and evaluation. All administrators are expected to engage in professional instruction in addition to their administrative assignments.
Recommendation 14 – The College’s or School’s Dean’s Office should include associate/assistant deans for: 1) the professional curriculum and programmatic outcomes; 2) student affairs (including recruitment, admissions, services); and 3) experiential programs.

Pharmacy faculty is a collective term for multiple disciplines that are needed to achieve an accredited program. These disciplines include: biomedical sciences (biochemistry, anatomy and physiology, microbiology, immunology, pathophysiology); pharmaceutical sciences (medicinal chemistry, pharmacology, toxicology, pharmaceutics, social and administrative pharmacy scientists); and pharmacy practitioner/educators (clinical sciences, and clinicians). Typically a two-academic-unit structure is the best possible arrangement for aligning related scientific and clinical practice disciplines.

Recommendation 15 – The College’s or School’s basic organizational structure should include two departments—Pharmaceutical Sciences and Pharmacy Practice—to appropriately engage and develop faculty teaching, scholarship, patient care, and institutional and professional service. The former would include the Ph.D. biomedical, pharmaceutical, and administrative, behavioral and social scientists; the latter would encompass the practice faculty (clinical sciences and pharmacy practice).

Figure 2: Proposed Organizational Structure of The College or School of Pharmacy

Standard 8 – Qualifications and Responsibilities of the Dean

The dean must be qualified to provide leadership in pharmacy professional education and practice, including research, scholarly activities, and service. The dean must be the chief administrative and academic officer and have direct access to the university president or other university officials delegated with final responsibility for The College or School. The dean must inspire administrators, faculty, staff, preceptors, and students toward achievement of the mission and goals. The dean is responsible for ensuring that all accreditation requirements of the ACPE are met, including the timely submission of all reports and notices of planning for substantive changes.

The Founding Dean for UA’s School or College of Pharmacy must be selected carefully. The UA should seek candidates whose attributes closely align with the Institution’s mission, goals, and vision for the program (see Recommendation 3). Emphasis must be placed upon selecting a candidate who possesses both successful administrative experience and academic accomplishments.
Typically, teaching-focused programs seek a dean who has a professional pharmacy degree (Pharm.D., or B.S. in Pharmacy and Ph.D.), practice experience, and administrative experiences, preferably at the level of chair or an associate dean and with broad programmatic experience.

The guidelines for interpreting this standard identify the qualifications and characteristics of a dean, which must include:

- A degree in pharmacy or a strong understanding of contemporary pharmacy and health care systems;
- A scholarly concern for the profession, generally, and for the diverse aspects of pharmacy practice, in particular;
- Publications in the pharmacy and biomedical literature in areas relevant to the mission and goals of the College or School;
- Appropriate leadership and managerial skills and experience in the academic (preferred) or health care sector;
- Strong written and interpersonal communication skills;
- A commitment to systematic planning, assessment, and continuous programmatic improvement;
- A commitment to teaching and student learning, including pedagogy;
- A commitment to the advancement of research and scholarship;
- The ability and willingness to provide assertive advocacy on behalf of:
  - The College or School to the College administration
  - The College or School and the profession of pharmacy in community, state, and national health care initiatives; and
  - A record of and willingness to continue active participation in the affairs of pharmacy’s professional and scientific societies.

Finally, the guidelines identify the minimum duties and responsibilities for the dean. The dean is responsible for ensuring that all accreditation requirements of the ACPE are met, including the timely submission of all reports and notices of planning for substantive changes. The dean must also be responsible for ensuring:

- Development, articulation, and implementation of the mission and goals;
- Acceptance of the mission and goals by the stakeholders;
- Development, implementation, evaluation, and enhancement of the educational, research, service, and pharmacy practice programs;
- Development and progress of the strategic plan and the evaluation plan, including assessment of outcomes;
- Recruitment, development, and retention of competent faculty and staff;
- Initiation, implementation, and management of programs for the recruitment and admission of qualified students;
- Establishment and implementation of standards for academic performance and progression;
- Resource acquisition and mission-based allocation; and
- Continuous enhancement of the visibility of the College or School on campus and to external stakeholders.
Recommendation 16 – The Provost, with the Chancellor’s approval, should prepare a job description for the Dean before advertising and recruitment commences. The job description should define the elements of authority and responsibilities, reporting relationships, and characteristics the Institution is seeking in the College or School of Pharmacy leader.

This standard, as articulated within the guidelines that explain the authority and responsibilities of the dean, specify that the dean has a full compliment of administrative-support personnel to assist in performing her/his duties and responsibilities. Some of these positions should be designated within the Dean’s Office (e.g. ACPE accreditation, recruitment, admissions, records, etc.) and others may be assigned within the Dean’s Office or provided by designated central administrative offices (e.g. business services, information technology, library, development). In most new schools where central delivery of these services is deemed most suitable, new positions must be allocated to provide the pharmacy program’s specific needs.

Recommendation 17 – The UA administration should decide whether to maintain program-based or central administration-based administrative support services. The services that should be required include:

- Accreditation services (clerical and data collection/analysis for NWCCU and ACPE);
- Business services (budgeting, contract administration for experiential sites, purchasing, facilities management, travel, management information, etc.);
- Student services (recruitment, application processing and management of applicant interviews, admissions staffing, student records for both academic and professional practice experiences, scheduling classes and experiential rotations, advising, ADA services, etc.);
- Library resources;
- Information technology; and
- Development.

Assuming these positions were established at UA as unit-based rather than central administration-based, the organizational chart would appear as follows:
Section 3 - Curriculum

Standards 9-15 detail the basic requirements for the curriculum, including its goals, terminal competencies, development, delivery, assessment, and improvement. These standards also specify the requirements for IPPEs and APPEs. A detailed analysis of these standards and guidelines is not essential until the institution hires a founding dean; therefore this report presents a bullet-point overview of the important elements that are required.

- The goal of the professional degree program must be to prepare graduates with the professional competencies to enter pharmacy practice in any setting to ensure optimal medication therapy outcomes and patient safety. (Standard 9)
- School’s faculty must be responsible for the development, organization, delivery and improvement of the curriculum. The professional portion of the degree must be a minimum of four academic years. (Standard 10)
- IPPEs must be at least 5% of the curricular length or 300 hours. APPEs must be at least 25% of the curricular length or 1,400 hours. (Standard 10)
- There must be student learning outcome expectations for the curriculum. (Standard 12)
- The professional degree must contain the following: biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, clinical sciences. (Standard 13)
- Assessment activities must employ a variety of valid and reliable measures systematically and sequenced throughout the professional degree program. The College or School must use the analysis of assessment measures to improve student learning and the achievement of the professional competencies. (Standard 15)
Configuration of the Curriculum

The degree program can be configured in multiple ways; the only requirement is for the minimum length of the curriculum—at least two academic years of pre-professional studies and a minimum of four academic years of professional studies. Standards 2007 specifies that the curriculum be a continuum from pre-professional through professional studies, but the preprofessional course requirements may be achieved at any accredited college or university.

Typical configurations of current programs include:

- **0-6** – students are admitted to the college or school of pharmacy post high school in an early assurance program\(^70\), and continue within the program from predominately pre-professional courses to professional courses and experiential education as long as they meet minimum academic requirements at each stage of progression;
- **2-4** – the most common configuration; students complete two or more years of pre-professional studies and then apply for admission to the final four years of professional education; pre-professional studies may be competed at any regionally accredited college or university;
- **3-4** – students complete three or more years of pre-professional studies and then apply for admission to the final four years of professional education; pre-professional studies may be competed at any regionally accredited college or university; and
- **2-3** – students complete a list of pre-professional course requirements at any accredited college and then apply to the professional program for admissions; the final three years are delivered year-round (9 continuous semesters without summer breaks).

Typically, programs that are structured using a 0-6 format have certain academic requirements that students must achieve to progress into the last four years of the program (P3-P6 years). These typically include:

- Completing all required courses during the first two years (P1 and P2) with an average GPA of not less than 3.0 (or 3.2 or higher) on a 4.0 scale and no grade of “D” or “F” in required courses;
- Obtaining a minimum composite score on the College of Pharmacy Admission Test (PCAT), typically in the 60th percentile or higher;
- No misdemeanor convictions related to drugs or any felony conviction before or during their pre-professional years;
- Recommendations from teachers and others who can verify the applicant’s abilities and personal habits;
- Evidence of effective written and verbal communication and critical thinking skills; and
- A successful on-site interview.

\(^70\) Guideline 17.2.

\(^71\) The Joint Commission for Accreditation of Health Care Systems has advised all accredited health care facilities to hold the health professions programs who assign students to training in its accredited facilities to meet these requirements. Therefore, any student who has such a conviction would likely not be able to complete the experiential education requirements for the Pharm.D.
Since there is typically a greater attrition rate during the first two years of primarily pre-professional studies, every existing 0-6 program also admits students into available slots from other accredited colleges and universities at the beginning of the final 4 academic years to fill their desired professional class size.

As described in Section 2 regarding pre-pharmacy programs at NW regional universities, pharmacy is rapidly advancing toward requirements that include a minimum of three years of pre-pharmacy course prerequisites or having students obtain a baccalaureate prior to applying to pharmacy school. Requiring more than two years of college education has arisen because: 1) the large number of applicants per available seat at current schools provides the opportunity to admit a more mature student; 2) the growth of Advanced Placement courses in high schools has reduced what was a two-year college experience to a one-year pre-pharmacy college experience; 3) the national evolution of professional doctoral programs, encouraged by Federal financial aid standards which require professional doctoral students to have completed at least three college years to qualify for health professions loan programs, which provide substantially more funding for the students than undergraduate grant and loan programs.

Recommendation 18 – The UA should strategically plan for a 3-4 professional program structure and place a preference upon applicants who have received a baccalaureate degree with a specified minimum requirement of sciences and advanced mathematics courses prior to admission.

Section 4 - Students

Standards 16-23 focus on students and student services as they apply to the Doctor of Pharmacy degree program.

Standard 16 – Organization of Student Services

The College or School must have an organizational element(s) devoted to student services. The administrative officer responsible for this organizational element must oversee and coordinate the student services of The College or School.

Programs that meet this standard are characterized as having:

- An administrative officer oversees student services.
- Students indicate that student services are meeting their needs.
- The organizational element devoted to student services has adequate financial and personnel resources to support the needs of students.
- Student services for pharmacy students are coordinated with university support services.
- Personnel are knowledgeable and aware of what they need to support students.

Standard 17 – Admission Criteria, Policies and Procedures

The College or School must produce and make available to students and prospective students criteria, policies and procedures for admission to the professional degree program... Student enrollment must be managed in alignment with available physical, financial, faculty, staff, practice site, preceptor, and administrative resources. The dean and a duly constituted committee of The College or School must share the final responsibility for enrollment and selection of students.
Programs that meet this standard are characterized as having:

- The College or School provides students with comprehensive information regarding its admissions criteria and policies and procedures.
- The College or School has low attrition combined with high NAPLEX [North American Pharmacy Licensure Examination] pass rates.
- The diversity of student body reflects The College or School’s area of service.
- The College or School regularly assesses its criteria, policies and procedures for admission into the program.
- Pre-admitted student perform on a level that’s comparable to students who were not pre-admitted.
- Student enrollment is well managed and the dean and faculty share the final responsibility for selection and enrollment of students.

While there are standards that focus on the quantitative number of faculty, adequacy of facilities, and financial support, there are no standards that restrict the number of students that may be entered into the program. The Council requires institutions to document that the number of students enrolled is aligned with available physical, financial, faculty, staff, practice site, preceptor, and administrative resources. Thus, UA administrators must plan for an entry class size that is relative to the various resources that will be allocated to the program.

The Council prefers to see newly forming programs begin with a smaller number of students and then expand once the institution has proven its ability to deliver a quality program through the achievement of full accreditation, which includes evaluating the availability of appropriate quality standards, resources, and operations to support an expanded entry class size.

Many people expressed to the Consultant their concern that Alaska could not support—either financially, in job placements, resident student applicants, or clinical placement sites—a typical new school entry class size of 60-70 students. Moreover, from a political standpoint, state legislatures are less likely to fund a program that is largely dependent upon out-of-state residents for the majority of students.

There are significant fixed costs associated with the startup of any program and pharmacy is no exception. There may be opportunities for joint instruction with the WWAMI first-year medical students that could reduce the costs for a new pharmacy program. The resources requirements discussed in **Standard 30** will present models of various strategies.

**Recommendation 19** – UA should plan for an entry class size of approximately 30 students into the last four years of the professional pharmacy program. If a larger student population is desired, the institution should plan its facilities accordingly and expand only when additional resources for faculty and clinical sites can be secured and after full accreditation is achieved.
Standard 18 – Transfer of Credits and Waiver of Requisites for Admission With Advanced Standing.
Few students transfer from pharmacy school to pharmacy school within the professional program. Standards 2007 provides for the institution to have appropriate policies in place in the event the College or School has such inquiries and considers transfer students.

Standard 19 – Progression of Students
Standards 2007 provides for the College or School to carefully manage student progression through the professional curriculum.

Standard 20 – Student Complaints Policy
Standards 2007 recognizes the students’ right to seek grievances and have them considered, therefore protecting the students’ due process rights.

Standard 21 – Program Information
The College or School must produce and make available to students and prospective students a complete and accurate description of the professional degree program, including its current accreditation status.

The founding class, by accreditation standards, will enroll in a pre-candidate accredited program that must advance to candidate status by the time the founding class graduates, or the graduates will not be eligible for licensure in any state. The UA must be careful in how it presents its pharmacy program to prospective and enrolled students so that the students understand completely the risks they face by enrolling in a program that is not yet accredited.

Standard 22 – Student Representation and Perspective
As a professional school, student engagement and collaboration is deemed a critical element in building professionalism and ensuring that the program is meeting the comprehensive educational needs of each student.

Standard 23 – Professional Behavior and Harmonious Relationships
The College or School must provide an environment and culture that promotes professional behavior and harmonious relationships among students, faculty, administrators, preceptors, and staff. Faculty, administrators, preceptors, and staff must be committed to developing professionalism and fostering leadership in students and to serving as mentors and positive role models for students.

Section 5 – Faculty and Staff
Standards 24-26 identify the quantitative and qualitative characteristics for faculty and staff to support the professional program. While no numeric ratios are specified, the Council expects the institution to document that it has both the requisite qualified faculty and adequate support staff to meet the College’s or School’s mission and deliver the program. One way to confirm this ratio is by documenting faculty workloads.
Standard 24 – Faculty and Staff-Quantitative Factors
The College or School must have a sufficient number of qualified full-time faculty and staff to effectively deliver and evaluate the professional degree program, while providing adequate time for faculty development, research and other scholarly activities, service, and pharmacy practice.

Programs that meet this standard are characterized as having:

- **Enough time** [for faculty] to consider new methods of instruction.
- **Enough time** [for practice faculty] to develop their practice sites before getting student assignments.
- **Low rates of faculty turnover, and faculty vacancies are filled quickly.**
- **Only qualified individuals...** given teaching responsibilities, and students consistently report that teaching is good.
- **[Encouragement of its faculty to] research and other scholarly activity and service without creating undue stress on the faculty.**
- **[A balance] of inexperienced to experienced faculty.**
- **Faculty is able to schedule time to meet with students when needed and are available to students for advising.**
- **Preceptors are able to spend time with students to meet the requirements of experiential education.**
- **Faculty can find mentors if desired.**
- **Faculty rarely complains about having enough support.**
- **Faculty frequently participates in professional or social events.**

Schools of pharmacy are not required to have a research mission; however, Standards 2007 does require that faculty be encouraged to conduct research and scholarship. This is generally interpreted by the Council as providing resources (faculty time; facilities; basic financial support for equipment/supplies and travel to professional and scientific meetings to present results and network with other like-minded professionals; institutional infrastructure, etc.) for faculty to be engaged beyond teaching so they are able to continue developing their scientific and professional skills. These are critical elements in documenting a faculty member’s continuing competence. Thus, pharmacy faculty must be given fewer teaching assignments than most liberal arts and sciences faculty. Moreover, most pharmacy faculty members nationally are appointed on a 12-month basis, rather than the more traditional 9-month appointments. For sciences faculty, the summer term is often used as a time to consider new methods of instruction, to catch-up on scholarship, and plan for the new academic year. For clinical faculty, APPEs typically enroll students in summer, fall, and spring semesters, which requires these faculty members to work on a 12-month basis.

While Standards 2007 do not specify an exact student to full- or part-time student faculty ratio, there must be sufficient numbers of sciences faculty to deliver the required biomedical, pharmaceutical, administrative/behavioral/social, and clinical sciences components of the curriculum and pharmacy practice. Biomedical sciences include: anatomy, biochemistry, genetics, microbiology, immunology, physiology, and pathophysiology. Pharmaceutical sciences include: pharmacology, toxicology, pharmaceutics, bio-pharmaceutics, medicinal chemistry, and social and administrative sciences. The school must also employ core practitioner faculty to deliver the didactic pharmacy practice and clinical sciences (literature evaluation, pharmacokinetics, therapeutics) and supplement them with qualified practitioners who are employed by pharmacies, clinics, nursing home, and hospitals and who precept students as adjunct or clinical faculty.
Pharmacy experiential education is based on role-model preceptorships where students participate—with their faculty member—in the care of patients, rather than the observer-model preceptorships where faculty supervise students who are performing functions in clinical sites. The role-model preceptorship faculty are expected to be provided sufficient time to develop a patient care service that is continuous, whether or not students are assigned. Once the patient care practice is established (typically 3-6 months, depending upon the type of faculty practice), faculty members are assigned students who work and learn along-side the faculty/practitioner. The guidelines for Standards 2007 encourage student-to-faculty ratios of 1:1 or 2:1 during experiential hours. To meet these requirements, most schools utilize full-time, part-time and volunteer practitioners to deliver clinical education.

Recommendation 20 - As an overall planning premise, a ratio of eight enrolled students to one full-time sciences and practice faculty member is considered appropriate. This ratio does not include program administrators.

The pharmacy faculty must have autonomy, within school policies and procedures and state and federal regulations, in the following areas:

- Programmatic evaluation;
- Definition and delivery of the curriculum;
- Development of bylaws, policies, and procedures;
- Student admission and progression policies; and
- Faculty and staff recruitment, development, evaluation, and retention.

Standards 2007 specify that a school must have sufficient support staff (secretaries, laboratory assistants, technicians, program coordinators) to assist faculty in accomplishing teaching, scholarship, and service assignments. A sufficient number of appropriately trained staff can be a lower cost strategy to accomplish many faculty workload duties, thereby reducing the number—and inefficient utilization—of more costly faculty who are significantly in short supply.

Standard 25 – Faculty and Staff-Qualitative Factors
The College or School must have qualified faculty and staff who, individually and collectively, are committed to its mission and goals and respect their colleagues and students. Faculty must possess the required professional and academic expertise, have contemporary knowledge and abilities in current educational philosophy and techniques, and be committed to the advancement of the profession and the pursuit of research and other scholarly activities. Faculty whose responsibilities include the practice of pharmacy must satisfy all professional licensure requirements that apply to their practice. The College or School must foster the development of its faculty and staff, commensurate with their responsibilities to the program.

Programs that meet this standard are characterized as having:
• Faculty [with] appropriate credentials and experience for their position.
• All disciplines are represented or accommodated.
• Faculty and staff [who] demonstrate a commitment of the mission and goals of The College or School.
• [An institutional] commitment to faculty development.
• Faculty development programs [with] documented, high levels of faculty participation.
• Practice faculty [who] is all licensed by the state.
• Staff development activities.
• Evidence of scholarly activity and grants.
• Educational support systems...provided to voluntary faculty.

An earned doctorate in the areas in which the faculty member instructs is the minimum academic credential for faculty members. For biomedical and pharmaceutical sciences, this includes the Doctor of Philosophy (Ph.D.) degree and preferably some postdoctoral experience. For the practice faculty, this includes the Doctor of Pharmacy (Pharm.D.) degree, or a Bachelor of Science in Pharmacy with relevant practice experience documented preferably by national board certification. A one- or two-year postdoctoral Graduate Pharmacy Education (residency) credential is also required for practice faculty; faculty who has not earned this credential must have documented activities to develop advanced practice credentials. Masters prepared individuals in the sciences, business, etc. may be faculty members, but the number of these individuals must be limited and they must have significant documentation as to their credentials beyond their degree program to be part of the full-time faculty. Volunteer preceptors with a Bachelor of Sciences in Pharmacy (a five-year undergraduate practitioner degree) may be engaged in experiential education, but advanced practice preceptors should have the Pharm.D. degree. ACPE and NWCCU generally do not expect health professions programs to require advanced professional degrees for their volunteer preceptor faculty as long as there is a sufficient core of full-time advanced professional degree faculty members with advanced practice credentials.

Standard 26 – Faculty and Staff Continuing Professional Development and Performance Review
The College or School must have an effective continuing professional development program for full-time, part-time, and voluntary faculty and staff consistent with their responsibilities. The College or School must review the performance of faculty and staff on a regular basis. Criteria for performance review must be commensurate with the responsibilities of the faculty and staff in the professional degree program.

Pharmacy has several national certification organizations that recognize advanced practice knowledge and skills that may be used to document faculty expertise to practice and teach. The leading organization is the Board of Pharmaceutical Specialties (http://www.bpsweb.org/01_About_BoardMembers.html). Pharmacists are also eligible for some multi-discipline certifications e.g. Certified Diabetic Educator, Certified Asthma Educator, Certified Pain Management Professional, Certified Lipidologist etc.
Section 6 – Facilities and Resources

Standard 27 – Physical Facilities
The College or School must have adequate and appropriate physical facilities to achieve its mission and goals. The physical facilities must facilitate interaction among administration, faculty and students. The physical facilities must meet legal standards and be safe, well maintained, and adequately equipped.

Programs that meet this standard are characterized as having:

- Facilities that support the mission and goals of the program.
- Teaching space supports the needs of the curriculum (e.g. small group learning rooms).
- [A] student lounge and study space [that] are adequate and readily accessible.
- Facilities allow for good interaction among faculty, students and administrators.
- Approvals for animal and human research facilities (if applicable).
- Designated space [for full-time faculty] to work and off-site faculty have dedicated space to work and prepare.
- Space available for faculty and administrative meetings and private areas …for closed conferences (e.g. with students).
- Facilities [that] are equipped to support contemporary educational technologies and educational methodologies used in the program.
- Research facilities [that] are equipped with appropriate technology.

Contemporary pharmacy education has didactic lectures, wet laboratories, small group (problem-based learning) sessions, and simulated pharmacy and patient care facilities (clinical simulation centers). Therefore, the facilities must be carefully designed to provide all these environments in support of the teaching and learning methods. In addition, students will require access to spaces for professional society meetings, social interactions, and study. Faculty members require private offices, conference rooms, wet laboratories for research, and perhaps research animal care facilities. All of these considerations must be planned in terms of enrollment goals when developing the facilities for a new school.

Facilities require appropriate maintenance. Institutional services like utilities, safety services, care of animals, and technology must be available to support faculty, staff, and students.

Standard 28 – Practice Facilities
To support the introductory and advanced pharmacy practice experiences (required and elective) and to advance collaboratively the patient care services of pharmacy practice experience sites (where applicable), The College or School must establish and implement criteria for the selection of an adequate number and mix of practice facilities and secure written agreements with the practice facilities.

Programs that meet this standard are characterized as having:

- Practice sites have enough variety and scope to meet curricular needs.
- Enough practice facilities to meet the required and elective advanced pharmacy practice experiences for all students.
- A plan for reviewing practice sites and an evaluation process…to assure annual contact with every site.
- Written affiliation agreements between the institution and school.
Collectively, rotations occur in diverse practice settings (community, institution, etc.) and cover diverse patient populations in terms of disease state, race, age, gender, [and] and cultural background.

School assessment tools and library facilities are accessible from the practice sites.

Collectively, the sites offer not only required, but also elective rotations.

School collaboration[s] with practice sites to advance patient-care services.

Carefully planning where students will be able to obtain their introductory and advanced experiential training is critical during the initial design phase of a new school. Practice faculty must have access to environments that appropriately support their patient care while also being available to teach in didactic, laboratory, small group, and other areas of the curriculum. If pharmacy practice faculty are located in cities some distance from the College or School, the institution must have office and educational support staff and facilities wherever these faculty are based, as well as distance education technology to allow the remote faculty to fully participate in instruction and faculty interactions on the main campus.

Table 10 data presents the Consultant’s assessment of potential clinical sites for APPE, the fourth year of the professional program. Anchorage is the only area in Alaska that can support the APPEs required for an accredited pharmacy program. A statewide network of sites may be used for elective and IPPE experiences, but there is no other option for locating the P4 year.

Recommendation 21 – Regardless of which University is responsible for offering the Pharm.D degree program, the fourth professional year must be based in Anchorage to take advantage of the health facilities and advanced preceptors to provide the APPEs.

Standard 29 – Library and Educational Resources
The College or School must ensure access for all faculty, preceptors and students to a library and other education resources that are sufficient to support the professional degree program and to provide for research and other scholarly activities in accordance with its mission and goals. The College or School must fully incorporate and use these resources in the teaching and learning process.

Programs that meet this standard are characterized as having:

- Students and faculty … access to hardcopy or on-line journals and references.
- Preceptor and students on advanced-practice rotation…access to library resources.
- Library skills…taught, and library use…integrated into teaching-and-learning processes.
- Customary references used by practitioners…available to students on-site.
- Technology…available to students.
- Holdings…of sufficient breadth and depth to support teaching, learning, research and other scholarly activities.
Being a “knowledge profession,” pharmacy is extremely dependent upon current journal and reference resources. One of the practice specialties of pharmacy is drug information, which is focused upon developing and honing the knowledge and skills required to translate drug information inquiries into knowledge that is directed toward patient care. These individuals rely on library resources and professionals to help teach and practice.

The American Association of Colleges of Pharmacy (AACP) has a special interest group of pharmacy librarians across the United States that has developed a list of reference and library holdings that pharmacy school faculty and students should be able to readily access through their library (see www.aacp.org/site/page.asp?VID=1&CID=380&DID=3619&TrackID).

The presence of a statewide health sciences library, based on the Anchorage campus, is an invaluable resource for a pharmacy program. It has, for many years, provided distributed medical library resources with trained medical librarians to assist both practitioners and students.

**Recommendation 22** – Early planning for a College or School should include input from the Alaska Medical Library. The UA should extend support to this facility and its statewide services so that pharmacy education resources are included. These supplementary resources include pharmacy-specific online databases and journals in addition to the medical reference and journal resources that are also critical to a pharmacy program.

Information technology resources adequate for accessing up-to-date information and the Internet must be available to all faculty, students, staff, and preceptors. It must be accessible both within the College or School’s buildings and through remote access at practice sites and student homes. Both UAA and UAF have outstanding computer network services and teaching and learning resources that would be required for a pharmacy program.

**Summary Considering Standards on Facilities**

Considering the combined requirements for the Standards focused on facilities (Standards 2729), Table 14 identifies the important criteria to determine location of the pharmacy program based on facilities.
Both sites have significant advantages, depending upon the program’s expected basic mission. Clearly, local access to quality experiential education sites is significantly better at UAA; in fact,

<table>
<thead>
<tr>
<th>Criteria</th>
<th>UA Anchorage Advantages</th>
<th>Disadvantages</th>
<th>UA Fairbanks Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruit and Retain Quality</td>
<td>Largest city in Alaska with the greatest number of spousal employment options</td>
<td>Travel time between school and practice site; availability of housing in faculty salary ranges</td>
<td>With the research mission, greater opportunities for science faculty members and spouses to find employment within the University</td>
<td>Smaller, more isolated community – smaller health care industry for clinical faculty practice sites.</td>
</tr>
<tr>
<td>Faculty/Spousal Employment</td>
<td>Greater access to large, tertiary health systems to support IPPE and APPE</td>
<td>University does not have regional accreditation for doctoral education</td>
<td>University regionally accredited for doctoral education</td>
<td>Students would need to relocate to Anchorage for the majority of their APPE</td>
</tr>
<tr>
<td>Accreditation</td>
<td>Large health care industry to support IPPE and APPE; more health professions students for interprofessional education opportunities</td>
<td>None</td>
<td>A community hospital and Alaska Native clinic willing to support pharmacy student education</td>
<td>Significant travel and relocation costs for students; faculty residing in multiple communities (P1-P3 faculty located in Fairbanks with P4 faculty located in Anchorage); mandatory use of distance education course delivery; more expensive to maintain two campuses</td>
</tr>
<tr>
<td>Access to Clinical Sites For Experiential Education</td>
<td>New Integrated Sciences Building With Vivarium; Health Sciences building under planning would provide some facilities for pharmacy education; planning initiated for second health sciences building includes some pharmacy designated space; Potential Back-fill Space With New Health Sciences in 2011</td>
<td>Space in the new Phase 1 Health Sciences building not planned for pharmacy education</td>
<td>Research, animal care, and University infrastructure to support sciences education and research</td>
<td>Due to P4 faculty having to be located in Anchorage, program would require two buildings in different cities; access to clinical education facilities (clinical simulation, human anatomy lab, etc.) would not be available</td>
</tr>
<tr>
<td>Cost To Build/Renovate and Maintain Facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Anchorage must be the base of the fourth-year APPE. Having other health professions programs—particularly medicine and baccalaureate/graduate nursing and physician assistant programs—on-campus are significant advantages. The major disadvantage of Anchorage is the limited research programs in the health professions and the need to upgrade regional accreditation to enable UAA to offer the Pharm.D. program.

UAFs’ major asset is the level of research and growing biomedical sciences research and graduate education. Significant disadvantages for locating the program in Fairbanks include: the city’s small size and the resulting inadequate capacity within its health systems to support APPEs; fewer spousal employment opportunities in a smaller community; and the fact that students will need to relocate to Anchorage for their fourth professional year experiential education, which creates hardships for the pharmacy students who must physically relocate twice in three years.

**Recommendation 23** - If a PharmD program is developed, its host location would be determined by the leaders of the University of Alaska universities and statewide system. This decision should include a statewide mandate for experiential education. Consideration should be given to 1) access to clinical sites, particularly in P3 and P4, 2) convenience for students, and 3) the opportunity for P1-P3 students to integrate with medical, nursing and other health professions students. If the mission of pharmacy education includes graduate and extensive faculty research productivity, strong affiliations and collaborations should be developed with biomedical scientists in Anchorage and Fairbanks to provide the variety of disciplines that are necessary and vital to making pharmacy graduate education and research viable.

As discussed under Standard 4, offering a PharmD at UAA will require the Regents to authorize UAA to apply for doctoral degree granting authority. Achieving such accreditation status should not be beyond the current resources of the UAA, particularly if the focus is limited to first-professional doctoral programs in the health professions. Such an action will be necessary if Alaska is to meet its future health professions’ needs in medicine, nursing, occupational therapy, pharmacy, and physical therapy. The national movement to first-professional doctoral education in nursing for advanced practice further supports the need for the Regents to extend the mission of UAA. It should be noted that extending the mission to include professional doctoral programs does not necessarily mean the mission must also extend to research-intensive Ph.D. programs. That issue is beyond the scope of this Study.

**Standard 30 – Financial Resources**

The College or School must have the financial resources necessary to accomplish its mission and goals. The College or School must ensure that student enrollment is commensurate with its resources.

Programs that meet this standard are characterized as having:

- The Executive Committee or equivalent is conversant in all areas of the budget.
- Department chairs...responsible for their own budgets.
- The budgeting process...internally transparent and faculty understanding it.
- Financial resources...available in a manner that supports the growth and development of the program and addresses the accreditation standards.
- Financial resources...sufficient to support and advance the mission and goals of the program.
UA will be required to identify sufficient startup resources to ensure adequate facilities, personnel, and operations will be provided to sustain the new program until such time as tuition revenue is sufficient to cover operating costs. These resources must be clearly identified prior to submitting a pre-candidate application to the ACPE. It will also be incumbent on the University to develop an appropriate budgeting process for the School of Pharmacy that will allow the Dean to meet the accreditation standard.

**PLAN FOR UA TO DEVELOP A PHARMACY SCHOOL**

The final section of this Report offers a plan to implement a pharmacy program at UA based upon recommendations put forth in prior sections of the Report. This section also outlines the major decisions that must be made as part of the planning process and includes a 5-year pro forma budget of revenue and expenses. The plan is based upon the general assumption that UA will ultimately decide to move forward with preparations for the new program and will hire the Founding Dean to be on-site in 2011.

**Planning Assumptions**

The Consultant used the following planning assumptions in developing this plan:

1. The pharmacy program will be organized as a separate academic unit of UA with a Dean, an Associate Dean for Curriculum and Outcomes, an Assistant Dean for Students, an Assistant Dean for Experiential Education, and two department chairs (pharmacy practice and pharmaceutical sciences). There will also be appropriate professional and clerical staff to support program development and operations.

2. The program will be configured primarily using a 3-4 structure.

3. The program will admit 30 students per entry class into the final four years.

4. The tuition for the initial two years will be equal to WWAMI program tuition.

5. Tuition will be inflated by 5% annually.

6. The program will include a set-aside for scholarships (tuition discounts) of 5%.

7. The University will construct a new building or renovate an existing and structurally sound building to house the new pharmacy program, according to the program design presented in this plan.

8. New faculty lines will be allocated to the appropriate departments to support the pre-professional studies required by the program. The funding for these positions will be identified in the recurring Pharmacy School budget.

9. A 10% administrative services expense will be paid from the recurring Pharmacy School budget for centralized institutional services.

10. Additional and pharmacy-specific library resources and support fees to meet the pharmacy curriculum will be allocated to the statewide Alaska Medical Library. The funding for these positions will be identified in the recurring Pharmacy School budget.

11. The Pharmaceutical Sciences faculty will be employed on a 9-month contract basis at a rate comparable to the 75th percentile of a peer group analysis of other Northwest Universities that offer a pharmacy program. The Pharmacy Practice faculty will be employed on a 12-month contract basis—at a rate comparable to the 75th percentile of a peer group analysis of other Northwest Universities that offer a pharmacy program—to teach experiential education year-round in the fourth professional year.

12. Pharmacy staff salaries will be paid according to typical UA staff salaries.
13. Once the program reaches full enrollment, teaching loads will be limited to 12 SCH per year for pharmaceutical sciences faculty and 8 SCH per year, plus 42 weeks of experiential instruction, for pharmacy practice faculty. The deans will be expected to teach, but for planning purposes their hours will not be included in these workload measures.

Planning Process
The structure of the professional curriculum and the number of students enrolled are the drivers for determining the resources required for achieving and maintaining an accredited pharmacy program. The Founding Dean and the leadership team must determine the curriculum to complete the Pre-candidate application to the ACPE. Once a full faculty is assembled, curriculum maintenance and modification will become the faculty’s responsibility.

To determine resource needs, the Consultant initially proposed a contemporary and typical curriculum designed to meet the minimum accreditation requirements for this plan. Once the curriculum was detailed, planning for faculty size and specialty areas was determined with consideration given to the teaching loads presented in the planning assumptions. Appropriate staffing to accommodate the administrators and faculty followed. Facilities were planned to reflect the size of the program and to impart a pharmacy building that will meet the needs of an entry program and simultaneously provide space for a potential expansion of the program that may occur after full accreditation is secured. Finally, a seven-year pro forma budget was developed to determine the revenue and expenses of the program.

Elements of the Plan

Class Size
The pro forma budget was developed under the assumption that the School will admit 30 new full-time students. Few students would not be economically feasible due to the fixed cost of the program. A larger entry class size would reduce the per student cost, but would stress the preceptor base for the state.

Curricular Plan
The curricular plan was considered as a continuum from the pre-professional years (admission from high school – pre-professional studies).
The pre-professional educational requirements...should provide basic sciences, such as general chemistry, organic chemistry, biological sciences (with a focus on human processes and diseases), mathematics, information and communication technologies, and physical sciences. Moreover, sufficient general education, defined as humanities, behavioral sciences, social sciences, and communication skills, should be provided in the pre-professional requirements to encourage the broadening of intellectual powers and interests and to facilitate the development of professional practitioners capable of understanding a culturally diverse society and their role in it as health care providers. Elements of general education also may be attained concurrently or integrated with the curriculum for the professional degree program.53

Table 7 presents the recommended pre-pharmacy program for the UA.

The last four years of the curriculum, termed the professional program by Standards 2007, must include...didactic course work to provide the desired scientific foundation, introductory pharmacy practice experiences (not less than 5% of the curricular length) and advanced pharmacy practice experiences (not less than 25% of the curricular length).54

To provide the thorough scientific foundation necessary for achievement of the professional competencies, the curriculum of the professional degree program must contain the following:

- Biomedical sciences;
- Pharmaceutical sciences;
- Social/behavioral/administrative sciences; and
- Clinical sciences.

Knowledge, practice skills, and professional attitudes and values must be integrated and applied, reinforced, and advanced throughout the curriculum, including the pharmacy practice experiences.

Special emphasis was added to Standards 2007 by the Council to enhance the professional experiences program. The College or School must provide a continuum of required and elective pharmacy practice experiences throughout the curriculum, from introductory to advanced, of adequate scope, intensity, and duration to support the achievement of the professional competencies...In aggregate, the pharmacy practice experiences must include direct interaction with diverse patient populations in a variety of practice settings and involve collaboration with other health care professionals.

As with most academic accreditation standards, Standards 2007 includes requirements for assessing and evaluating student learning and curricular effectiveness. These requirements are compatible with those required by NWCCU.

The Consultant initially established a model curriculum that would: (1) modestly satisfy all the accreditation standards; (2) provide for a 3-4 program configuration, as recommended in Table 7

53 Guideline 17.1.
54 Typically, the percentage requirements are determined based on percentage of total credit hours of professional program requirements for the degree.
and Recommendation 18; and (3) focus on teaching as the primary mission.

Both the UA Anchorage and the UA Fairbanks currently offer all courses that are required for pre-professional studies in pharmacy. Table 15 presents the model professional program. 75

Table 15: UA Pharmacy Professional Program (P1-P4 Years)

<table>
<thead>
<tr>
<th>Course Title &amp; Focus</th>
<th>Semester Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1 Year: First Professional Year (Fall Semester)</td>
<td></td>
</tr>
<tr>
<td>Biochemistry of Human Disease Advanced Biochemistry of human diseases</td>
<td>4</td>
</tr>
<tr>
<td>Immunology, Vaccines &amp; Immunization Techniques Immunological Principals of disease; vaccines; Lab Skills in Administration of Immunizations</td>
<td>3</td>
</tr>
<tr>
<td>Pharmaceutical Dosage Forms With Lab Pharmaceutical Calculations; Compounding Lab, Physical, Chemical, Clinical Properties of Dosage Forms</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Epidemiology/Pharmacoconomics Pharmaceutical Care Process; Principles of Epidemiology; Basic Patient Assessment -Vital Signs; Cultural Considerations in Patient Care</td>
<td>3</td>
</tr>
<tr>
<td>Introductory Clinical Experiences -Community Pharmacy Practice</td>
<td>1</td>
</tr>
<tr>
<td>Practice Management -Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>17</td>
</tr>
</tbody>
</table>

| P1 Year: First Professional Year (Spring Semester)                                   |                      |
| Course Title & Focus                                                                 | Semester Credit Hrs. |
| Human Physiology and Principals of Disease Adv Physiology and Principals of Pathophysiology | 4                    |
| Advanced Molecular Biology and Pharmacogenetics                                      | 3                    |
| Biopharmaceutics and Pharmacokinetics Absorption, Distribution, Elimination of Drugs | 3                    |
| of Drug Action Principles of Pharmacodynamics & Toxicology                           | 3                    |
| Introduction to Pharmaceutical Care Care Plans; Documentation                       | 1                    |
| Introductory Clinical Experiences -Health System Practice                            | 1                    |
| Total Semester Credit Hours                                                          | 18                   |

| P2 Year: Second Professional Year (Fall Semester)                                    |                      |
| Course Title & Focus                                                                 | Semester Credit Hrs. |
| Pharmacotherapy I Pathology, Pharmacology, Medical Chemistry & Therapeutics of Common Diseases By Body System | 14                   |
| Biostatistics and Clinical Research Design Clinical Research Designs w/Statistical Analysis | 4                    |
| Introductory Clinical Experiences – Continuity Care Laboratory Values & Patient Monitoring Skills in Continuity Clinics | 2                    |
| Total Semester Credit Hours                                                          | 20                   |

75 Even teaching focused programs must, by Standards 2007, provide the resources and time for faculty to participate in scholarship, patient care services, and professional development. The concept of a teaching-focused program lies more with the Institution’s guidelines for promotion and tenure of faculty rather than the minimum resources required establishing and maintaining an accredited professional degree program.
### Year 3: Third Professional Year (Fall Semester)

<table>
<thead>
<tr>
<th>Course Title &amp; Focus</th>
<th>Semester Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacotherapy III</td>
<td></td>
</tr>
<tr>
<td>Pathology, Pharmacology, Medical Chemistry &amp; Therapeutics of Common Diseases By Body System Continuation of Pharmacotherapy I</td>
<td>14</td>
</tr>
<tr>
<td>Preparation of Sterile Products; Dispensing Common Oral Medications</td>
<td>2</td>
</tr>
<tr>
<td>Practice Management -Pharmacy Law &amp; Ethics</td>
<td>3</td>
</tr>
<tr>
<td>Legal and Ethical Precepts of Pharmacy Practice</td>
<td></td>
</tr>
<tr>
<td>Literature Evaluation and Drug Information</td>
<td></td>
</tr>
<tr>
<td>Use of Drug Information Resources to Answer Patient Focused Therapeutic Questions With Evidence Based Practice Guidelines</td>
<td>2</td>
</tr>
<tr>
<td>Introductory Clinical Experiences -Special Populations</td>
<td></td>
</tr>
<tr>
<td>Social, Ethical &amp; Patient Care of Special Populations (Alaska Native, Elderly Patients, Pediatric Patients)</td>
<td>3</td>
</tr>
<tr>
<td>Case Studies I – Small Group, Problem-Based Learning</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Semester Credit Hours</strong></td>
<td>19</td>
</tr>
</tbody>
</table>

**TOTAL P3 YEAR CREDITS** 37

### P3 Year: Spring Semester

<table>
<thead>
<tr>
<th>Course Title &amp; Focus</th>
<th>Semester Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacotherapy IV</td>
<td></td>
</tr>
<tr>
<td>Therapeutics of Special Populations</td>
<td>10</td>
</tr>
<tr>
<td>Introductory Clinical Experiences – Chronic Disease Management Skill</td>
<td>6</td>
</tr>
<tr>
<td>Case Studies I – Small Group, Problem-Based Learning</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Semester Credit Hours</strong></td>
<td>19</td>
</tr>
</tbody>
</table>

**TOTAL P3 YEAR CREDITS** 37

### Year 4: Fourth Professional Year (Nine Weeks)

<table>
<thead>
<tr>
<th>Course Title &amp; Focus</th>
<th>Semester Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Professional Practice Experiences</td>
<td></td>
</tr>
<tr>
<td>Basic Professional Practice Skills 1-week Training For Professional Experiential Program; Ethics, Counseling &amp; History Taking Skills; Patient Education</td>
<td>2</td>
</tr>
</tbody>
</table>

### TOTAL P2 YEAR CREDITS

39

### TOTAL P3 YEAR CREDITS

37

### TOTAL P4 YEAR CREDITS

37
The entire four-year professional curriculum requires 160 Semester Credit Hours (SCH), meeting both NWCCU and ACPE requirements. IPPE’s composes 6% of the professional program credit and APPE’s composes 25%.

### Pharmacy Faculty Workload Analysis

Table 16 depicts the faculty staffing plan to deliver the P1-P4 years to 30 students per entry class. The top of the table, above the solid line, reflects the staffing by discipline based on SCH’s of instructional time. The information below the solid line reflects the faculty lines required to deliver the Professional Practice Experiences (IPPE and APPE). The box on the bottom left of the page summarizes the total number of SCH’s by discipline and calculates the number of FTE faculty members required within each discipline. It also identifies the number of FTE faculty required to deliver the Professional Practice Experiences above the number identified in Table 10. Since it is not possible to predict the disciplines of the dean or the executive associate dean, these positions were not included in the teaching workload analysis. Furthermore, while these individuals will be expected to provide professional courses, the guidelines for quantitative number of faculty in Standards 2007 specify that these positions should not be included in the count of instructional faculty.
Table 16: Faculty Workload

<table>
<thead>
<tr>
<th>Fall Semester Courses</th>
<th>Contact Hrs/Loads (FTEs) (Excl. 12 Ros./SCH)</th>
<th>faculty</th>
<th>total</th>
<th>part-time</th>
<th>full-time</th>
<th>PhD</th>
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<th>Total FTE Faculty Required</th>
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P1 Year

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P3 Year

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<th>PhD</th>
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</table>

To compute the number of FTEs by discipline, an average annual teaching load of 12 SCH’s per year for sciences faculty and 18 SCH’s per year for clinical faculty was applied as the standard load.

The boxed data at the bottom left of the table summarizes the required faculty by discipline: 22 FTE faculty (including Dean, Assistant/Associate Deans and Chairs) will be required for 30 students in each entry class (total enrollment of 120 students). This assumes that compensated part-time faculty will teach 50% of the patient care and 100% of the community and institutional practice rotations. The actual number of full-time faculty needed for the P4 year APPE will need to be a focus of additional study and analysis as the Founding Dean develops the program’s strategic plan.

The current infrastructure to provide the first three years of pre-pharmacy education is in-place in both Fairbanks and Anchorage, though there may be issues with classroom size in some of the freshman and sophomore sciences courses. This classroom size issue must be carefully considered regardless of whether the UA establishes its own pharmacy program or serves as a partner with an out-of-state program whereby students complete their pre-professional education at UA. By offering pre-pharmacy at both UAA and UAF, potential concerns with the number of pre-professional students may not be as critical as some administrators initially may perceive.
Library Resources
The current libraries in both Anchorage and Fairbanks are more than adequate to support the existing pre-pharmacy courses. The Alaska Medical Library, with additional resources to support a pharmacy collection, would meet the needs of the professional students.

Physical Facilities
Standards 2007 specifies that the program be provided with adequate and appropriate facilities—including equipment and furnishings—to conduct its comprehensive programs. These facilities must be desirable, comfortable, and safe. Specific facilities must include:

- Offices for administrators and core faculty that provide privacy for study and for counseling and advising students;
- Accommodations for staff, commensurate with their responsibilities;
- Lecture rooms, small classrooms, and conference rooms to accommodate curricular and other programmatic needs;
- Facilities for individual and small group study by students;
- Information and communication technologies to support the mission, including faculty and staff development, with appropriate data security and recovery systems;
- Laboratories dedicated to professional curriculum instruction and practice simulation that are reflective of contemporary pharmacy practice and standards, including facilities for extemporaneous preparation of intravenous and other medications;
- Laboratories and other resources, such as instrumentation, to support research and other scholarly activities;
- Student activity areas, including space for professional organization materials and meetings, to support a favorable environment for student life; and
- Appropriate equipment to support the needs of administration, faculty, preceptors, and students that is up-to-date and well maintained;

The projected size of the entry class, the curriculum, and the requisite faculty and staff positions to deliver the overall mission(s) will determine the size and complexity of the facilities and the amount of equipment and furnishing required to initiate the program.

Table 17 presents a program plan for the pharmacy facilities. The building projected is for an eventual entry class size of 30 students. Instructional labs are designed for two sections of 15 students. The same strategy is used to plan the number of small-group problem-based learning rooms (students will also use these rooms for after-class and nighttime study groups). The space plan is further divided into wet laboratory space and standard construction space to provide a better analysis of construction costs. The Consultant used an estimate of $550/ft² for wet laboratory construction and $350/ft² for standard classroom/office/conference room construction. Consulting with an architect will be important to develop a more regionalized cost estimate for construction or renovation once the UA decides where the pharmacy building will be located (or included within a new health sciences building) and whether the University will build a new facility, or renovate an existing, structurally sound building.
9.4M. An estimated $1.12M (12% of construction costs) in additional costs will be required to
equip and furnish. The building will also require basic equipment for the instructional and faculty
research laboratories. The cost for these items is estimated to be $250,000.

**Pro Forma Budget**

A five-year Pro Forma budget is included in Appendix B. It details a 5-year estimate of revenue,
net operating results, and indirect operating results. The Summary is provided in Table 19.

Due to the requirements to earn pre-candidate accreditation status, the earliest the program could
admit students would be FY13 (See Time Table 20).

**Revenue - Tuition and Fees**

Tuition and fees are targeted at the WWAMI first-year tuition for FY2009/2010 and increase 5%
per annum.
A set-aside equaling 5% for the professional program is included for recruitment and needs-based scholarships (tuition discounts).

**Administration and Instructional Faculty Costs**

The operating budget assumes the dean will be hired in Startup year 1 (projected to be 2013) along with the other program administrators. ACPE also expects key instructional faculty to be hired approximately one year prior to the entrance of first professional students so that course materials and procedures can be planned. Additional faculty and staff hires are scheduled across each year. Faculty employment should begin on July 1 with initial instruction beginning in August. This is the typical expectation for a newly developing professional program. The ACPE will likely encourage the new program to hire a mix of entry level and senior faculty members. For the pro forma, the Consultant assumed a mix of 10% professors, 25% associate professors, and 65% assistant professors. The salaries are projected using a public university peer group with calendar year appointments.

<table>
<thead>
<tr>
<th>Rank&gt;Title</th>
<th>Average Salary</th>
<th>25th Percentile</th>
<th>50th Percentile</th>
<th>75th Percentile</th>
<th>Average Increase</th>
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<td>85,504</td>
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</table>

Source: AACP Salary Database

As stated in the assumptions, this report—in projecting faculty costs—uses the 75th percentile level. All pharmacy schools nationwide are facing a significant shortage (10%+ of available faculty lines, and increasing annually). When one also considers that UA will be a new program without a track record and the additional cost of living in Alaska relative to most other states, planning salaries at the 75th percentile seems prudent. All salaries are inflated annually at a conservative rate of 5%.

**Clerical and Professional Staff**

ACPE requires the program to employ a student services staff (admissions, records, recruitment, etc.) and most existing pharmacy programs also have business, development, information technology, and distance learning staff that support the dean and department chairs. However, the UA’s existing institutional offices could provide these services if adequate staff are available or are added to this office. These positions were included in the School of Pharmacy Pro Forma budget.

The Pro Forma budget does not include a pharmacy Development Officer. If a Development Officer is planned, the cost for employing this individual, plus related travel and operations, will need to be added to the budget.
The plan calls for each administrator to have a full-time clerical assistant and a limited number of additional clerical assistants to service the entire faculty. Salary ranges were provided by the University’s human resources office.

**General Operating Expenses**

Accreditation fees and institutional membership dues in the American Association of Colleges of Pharmacy are estimates based upon 2009 fees and are inflated by 5% annually. This estimate also assumes that the average number of ACPE on-site visits typically required for new programs will also be required for UA.

Due to the remoteness of Alaska and the cost of air transportation to major cities, administrative and faculty professional travel is projected at $8,000 and $3,000, respectively. Materials and supplies, including laboratory supplies and medications, are estimated at $5,000/FTE for administration plus $3,000 per FTE faculty member. Medications, bulk compounding chemicals, and glassware are expensive, relative to the costs of many biology and chemistry supplies. Additional operating costs, including utilities and maintenance for the pharmacy building, are projected at $15/ft². The program will require new and replacement equipment each year, and a budget item for miscellaneous items is also included. Funds are also budgeted for faculty recruitment and startup. In addition, the pro forma budgets include funds during the last year for the program to purchase a number of clerkships from health systems and clinics. Sites generally require a payment for instructional services when their practitioners serve as preceptors.

**Capital Costs**

The pro forma was developed assuming no donor gifts would be included in the financial plan.

**Summary Of Net Operations and Capital Costs**

Table 19 outlines the 5-year results. It does not include appropriated funds, assuming the State will need to cover the 5-year Direct Operating Results of $11M shortfall, tuition and fees over cost. This figure does not include the capital costs for facilities and furnishings, estimated at $12M. A detailed analysis is presented in Appendix B.

| Net Revenue After Scholarships | $7.5M |
| Direct Operating Expenses      | $18.5M |
| Direct Operation Results       | ($11M) |
| Capital Requirement            | $12M |

**Time Table**

Table 20 presents an estimated time-line for program development.
CONCLUSIONS - PHARMACY SCHOOL FEASIBILITY

The analysis of the nine institutional readiness criteria for developing a pharmacy program at UA concluded that the UAA and UAF are at different stages relative to the feasibility of initiating a pharmacy program. The UAA is deficient in: including pharmacy as part of its strategic plan; having NWCCU approval for doctoral education; and the identification of long-term commitment of adequate financial resources from the Legislature to fund the program. The UAF is deficient in: including pharmacy as part of its strategic plan; a campus culture of health professions education; the identification of long-term commitment of adequate financial resources from the Legislature to fund the program; the identification of a plan to secure adequate facilities to house the first three years; and an adequate number of clinical placement sites within the area to support APPEs. Based on this analysis, neither institution is ready to undertake a pharmacy program, but, with focused planning and sufficient resources, a pharmacy professional program could become feasible. The decision of location will be made internally. If UAF were to be the degree-granting program, students would have to relocate to Anchorage for the P4 year of Advanced Professional Practice Experiences to meet the accreditation requirements.
In reviewing the thirty ACPE accreditation standards that must be fully met to achieve an accredited program, the Consultant provided 19 recommendations to assist the UA in addressing the needs for a new pharmacy program.

The 5-year planning analysis suggests that the program revenue would be $7.5M, with operating costs of $18.5M, resulting in the need for the Legislature to appropriate $11M over five years for the UA to offer the program. Annual appropriations of $1.9M to $2.7M (FY13-FY17) will be needed, in addition to a capital appropriation of $12M. (Note: In the Pro Forma following, the dates show FY11-15. Considering the need for Legislative appropriations, FY13-17 is the more reasonable timeframe.)

The focus of the Pharm.D. program should be on enhanced direct patient care skills of the graduates. The state’s need for highly trained clinicians who can focus on the management of patient problems that depend on particularly complex drug therapy management is an important, unmet need across the state.

Assuming there are no unexpected delays in the decision process, construction of facilities, recruitment of a Founding Dean, and accreditation reviews—and assuming favorable votes are secured from the NWCCU and ACPE—the program can enroll its founding class (P1 year) of pharmacy students (3-4 program) in fall 2013. These students would comprise the program’s first graduating class in May 2017.
## APPENDIX A: University of Alaska Pharmacy Partnership Program Pro Forma Summary

### Financial Summary

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<th>Description</th>
<th>FY11</th>
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<td>$6,901,772</td>
<td>$6,901,772</td>
<td>$6,901,772</td>
<td>$6,901,772</td>
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<tr>
<td>Instructional Salaries and Benefits</td>
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<td>$109,320</td>
<td>$109,320</td>
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<tr>
<td>Administrative Salaries and Benefits</td>
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<td>General Operating Expenses (including Est. Partner Fee)</td>
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<td>Capital Budget (Non-Resuming)</td>
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<tr>
<td>Library Expenses</td>
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<tr>
<td>Total Direct Expenses</td>
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### Direct Operating Result

<table>
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<tr>
<th>Description</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>Cumulative</th>
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<tbody>
<tr>
<td>Direct Operating Result</td>
<td></td>
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<tr>
<td>($663,700)</td>
<td>($1,141,408)</td>
<td>($1,179,524)</td>
<td>($1,420,265)</td>
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### Capital Budget

<table>
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<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities Design</td>
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<td>$0</td>
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<td>$0</td>
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<td>Facilities Construction</td>
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<td>Furniture and Fixtures (13% of Construction)</td>
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<td>Databases Education Classroom Technology</td>
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<td>$150,000</td>
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<td>Instructional Lab Equipment (Reduction @ 10 stations)</td>
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<td>Simulation Lab Equipment (Reduction @ 25 stations)</td>
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<td>Seed Research Lab Equipment (Reduction @ 2 labs)</td>
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### Statistics

<table>
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<tr>
<th>Description</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>Cumulative</th>
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</thead>
<tbody>
<tr>
<td>Enrollment</td>
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<td>Tuition RISE (FY) 2012-2014</td>
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<td>Revenue AV (FY)</td>
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<tr>
<td>Student-Faculty Ratio</td>
<td>5.00</td>
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<td>Direct Cost per Student</td>
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<td>Average Operating Results per Student</td>
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<td>$425.00</td>
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<tr>
<td>Administrative Faculty FTEs</td>
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<td>1.0</td>
<td>1.0</td>
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<td>Administrative Staff FTEs</td>
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<td>Faculty FTEs</td>
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<tr>
<td>Academic Year</td>
<td>FY11</td>
<td>FY12</td>
<td>FY13</td>
<td>FY14</td>
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<tr>
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<td>------</td>
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</tr>
<tr>
<td>PRO – 1st Year</td>
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<td>20</td>
<td>20</td>
<td>20</td>
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<td>PRO – 2nd Year</td>
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<tr>
<td>PRO – 3rd Year</td>
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<tr>
<td>PRO – 4th Year</td>
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<td>Total</td>
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<td>30</td>
<td>50</td>
<td>70</td>
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</table>

**Assumptions:**
- FT = Drop Rate 1st Year: 5%
- FT = Drop Rate 2nd Year: 0%
- FT = Drop Rate 3rd Year: 0%
- FT = Drop Rate 4th Year: 0%
<table>
<thead>
<tr>
<th>Positions</th>
<th>Startup FY11</th>
<th>Enroll 1st Class FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Office of Dean</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partnership Program Director/Regional (Assoc Dean)</td>
<td>$177,000</td>
<td>$104,796</td>
<td>$160,145</td>
<td>$168,952</td>
<td>$237,920</td>
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<tr>
<td>Administrative Generalist 3</td>
<td>$44,400</td>
<td>$48,102</td>
<td>$49,000</td>
<td>$49,951</td>
<td>$51,949</td>
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<td><strong>Associate/Assistant Deans &amp; Professional Staff</strong></td>
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<td></td>
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<td></td>
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<tr>
<td>Student Functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admission/ Student Services Staff Technician 2</td>
<td>$44,400</td>
<td>$46,182</td>
<td>$48,000</td>
<td>$49,951</td>
<td>$51,949</td>
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<td>Financial Program Staff Technician 2</td>
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<td>$0</td>
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<tr>
<td>Business Functions</td>
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<td>School Business Officer</td>
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<td>IT Functions</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>System Administrator/Developer</td>
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<td>$0</td>
<td>$0</td>
<td>$0</td>
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</tr>
<tr>
<td>IT Support Technician</td>
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<td>$49,000</td>
<td>$49,007</td>
<td>$50,919</td>
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<tr>
<td><strong>Faculty Secretary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Secretary, Prof Administrative Generalist 2</td>
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<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total Administrative Salary</strong></td>
<td>$327,997</td>
<td>$445,009</td>
<td>$442,095</td>
<td>$459,006</td>
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<tr>
<td>Fringe Benefits @ 31.3% of Executive Salaries</td>
<td>$50,000</td>
<td>$63,037</td>
<td>$61,239</td>
<td>$63,748</td>
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<td>Fringe Benefits @ 57% of Non-Exempt (Classified) Salaries</td>
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<td>$50,465</td>
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<tr>
<td>Fringe Benefits @ 34.3% of Exempt (APT) Salaries</td>
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<tr>
<td><strong>Administrative Salary and Benefits</strong></td>
<td>$284,500</td>
<td>$425,437</td>
<td>$422,095</td>
<td>$429,006</td>
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<tr>
<td><strong>Administrative Faculty FTE Count</strong></td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Administrative Staff FTE Count</strong></td>
<td>3.00</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
</tr>
</tbody>
</table>

**Assumptions:**
- Assumes Executive Non Union
- ASSCP Profile of Pharmacy Faculty 2009/2010 For Public Pharmacy Schools 12-mo Appointments @ 75% FTE Base
- Assumes Salary Summary:
  - Dean: $200,000
  - Chair/Professor: $144,000
  - Assistant Dean: $132,142
  - Assoc Dean: $144,000
- Initial Salary by 4% each year from 120% of Base in Appendix A.
- All other positions based on anticipated salary in FY09 and then inflated by 4% each year.
- Other Administrative Functions will be provided by UAA

<table>
<thead>
<tr>
<th>Administration</th>
<th>Facilities Management</th>
<th>Media Relations</th>
<th>Fundraising</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting/Treasury/Payroll</td>
<td>General Counsel</td>
<td>Government Relations</td>
<td>Facilities Management</td>
</tr>
</tbody>
</table>
# University of Alaska Pharmacy Partnership Program Pro Forma

## Faculty Instructional Expenses

<table>
<thead>
<tr>
<th>Faculty Category</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral &amp; Administrative Sciences</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Biomedical Sciences (May Be Divided Over Multiple PT Faculty)</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Pharmaceutical Sciences (May Be Divided Over Multiple PT Faculty)</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Pharmacy Practice</td>
<td></td>
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<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Total Faculty</td>
<td></td>
<td>4.00</td>
<td>5.00</td>
<td>7.00</td>
<td>9.00</td>
</tr>
<tr>
<td>Total Student FTE</td>
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<td>20</td>
<td>39</td>
<td>58</td>
<td>77</td>
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<tr>
<td>FTE Students/Faculty Ratio (Target = X)</td>
<td>5.00</td>
<td>7.80</td>
<td>8.29</td>
<td>8.56</td>
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</tbody>
</table>

## Salary (Weighted 10% Postions Professors, 25% Positions Associate Professors, 65% Positions Assistant Professors)

| Administrative Social Sciences         | $117,350 | $122,355 | $126,979 | $132,955 | $137,340 |
| Biomedical Sciences                   | $117,350 | $122,355 | $126,979 | $132,955 | $137,340 |
| Pharmaceutical Sciences               | $117,350 | $122,355 | $126,979 | $132,955 | $137,340 |
| Pharmacy Practice                     | $117,350 | $122,355 | $126,979 | $132,955 | $137,340 |

## Salary Expense

| Behavioral & Administrative Sciences   | $0    | $122,355 | $126,979 | $132,955 | $137,340 |
| Biomedical Sciences                   | $0    | $122,355 | $126,979 | $132,955 | $137,340 |
| Pharmaceutical Sciences               | $0    | $122,355 | $126,979 | $132,955 | $137,340 |
| Pharmacy Practice                     | $0    | $122,355 | $126,979 | $132,955 | $137,340 |
| Total Faculty Salaries                 | $0    | $488,580 | $533,985 | $584,446 | $625,050 |
| Total Fringe Benefits                  | $0    | $155,765 | $232,532 | $294,860 | $343,325 |

## Total Instructional Salary and Fringe Benefits

| $644,345 | $537,427 | $1,219,312 | $1,569,375 |

## Assumptions:
- Assumes All Faculty Classified as United Academic (trapezoidal)
- AACP Profile of Pharmacy Faculty 2008-2009 For Public Pharmacy Schools 12-mo. Appointment at 75% Parcentage
- Faculty = Professor Rank for 10% Lines
- Faculty = Associate Professor Rank for 25% Lines
- Faculty = Assistant Professor Rank for 65% Lines
- Annual Salaries Inferred by 4.0%
- Fringe Benefit rate of 31.0%
# University of Alaska Pharmacy Partnership Program Pro Forma

## General Operating Expenses

<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Startup</th>
<th>Enroll 1st Class</th>
<th>FY14</th>
<th>FY16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accreditation Costs, Fees &amp; Professional Duties</td>
<td>$25,000</td>
<td>$26,000</td>
<td>$27,040</td>
<td>$28,122</td>
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<tr>
<td>Equipment, Furniture, Rental, Repair and Maintenance</td>
<td>$15,830</td>
<td>$19,430</td>
<td>$18,516</td>
<td>$14,730</td>
</tr>
<tr>
<td>Faculty Travel ($2,500 FTE)</td>
<td>$300</td>
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</tr>
<tr>
<td>Faculty Supplies (including instructional ($3,000 FTE))</td>
<td>$60</td>
<td>$2,480</td>
<td>$16,940</td>
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</tr>
<tr>
<td>Administrative Travel ($5,000 FTE)</td>
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<td>Administrative Supplies ($3,000 FTE)</td>
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<td>$1,250</td>
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<td>$3,375</td>
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<td>Royalties</td>
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<td>$2,265</td>
<td>$3,230</td>
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<td>Advertising and Promotion</td>
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<td>$1,182</td>
<td>$1,125</td>
<td>$1,170</td>
</tr>
<tr>
<td>Recruiting Expenses/Benefits for Faculty &amp; Staff ($4,320 FTE)</td>
<td>$16,950</td>
<td>$4,190</td>
<td>$8,542</td>
<td>$9,200</td>
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<tr>
<td>Operations, Communications, Merchandising, etc.</td>
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<td>$2,060</td>
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<tr>
<td>Purchased Courseware ($1,000/ACPE cohort and 200 student hours)</td>
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<td>$3,000</td>
<td>$3,027,30</td>
<td>$3,765,84</td>
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</table>

**Total General Operating Expenses**

|                                                   | $75,040 | $36,282          | $75,870 | $1,186,852 | $1,566,913 |

**General Operating Costs Per FTE**

|                                                   | $75,040 | $36,282          | $75,870 | $1,186,852 | $1,566,913 |

**Assumptions:**

- Payments to Partner University on an enrollment-based model.
- Expenses included in the base model are not inflated.
- Operating costs increased by 4% per year.
# APPENDIX B: University of Alaska School of Pharmacy Pro Forma Summary

## Operating Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>Startup</th>
<th>Enroll 1st Class</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
<th>FY21</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue for UA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition and Fee Revenue</td>
<td>0</td>
<td>7,239,139</td>
<td>5,254,754</td>
<td>3,326,788</td>
<td>2,288,748</td>
<td>3,177,435</td>
<td>7,598,136</td>
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<tr>
<td>Less Financial Aid</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Tuition Revenue</td>
<td>0</td>
<td>7,239,139</td>
<td>5,254,754</td>
<td>3,326,788</td>
<td>2,288,748</td>
<td>3,177,435</td>
<td>7,598,136</td>
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<td></td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>0</td>
<td>7,239,139</td>
<td>5,254,754</td>
<td>3,326,788</td>
<td>2,288,748</td>
<td>3,177,435</td>
<td>7,598,136</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expenditure for UA</strong></td>
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<tr>
<td>Instructional Salaries and Benefits</td>
<td>257,782</td>
<td>2,029,292</td>
<td>1,149,212</td>
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<td>1,000,260</td>
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<tr>
<td>Administrative Salaries and Benefits</td>
<td>1,415,493</td>
<td>9,998,000</td>
<td>5,947,725</td>
<td>7,903,584</td>
<td>7,908,494</td>
<td>3,367,264</td>
<td>6,734,294</td>
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<td></td>
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</tr>
<tr>
<td>General Operating Expenses (Including Ext Partner Fees)</td>
<td>1,415,493</td>
<td>9,998,000</td>
<td>5,947,725</td>
<td>7,903,584</td>
<td>7,908,494</td>
<td>3,367,264</td>
<td>6,734,294</td>
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<td>Library Expenses</td>
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<td>12,012,015</td>
<td>9,220,150</td>
<td>9,985,300</td>
<td>9,996,480</td>
<td>8,067,294</td>
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<tr>
<td><strong>Direct Operating Result</strong></td>
<td>-2,086,144</td>
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<td>-9,220,150</td>
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<td>-9,996,480</td>
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## Capital Budget (Non Recurring)

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<td>Facilities Construction Additon To Existing Building Project</td>
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<tr>
<td>Furnishings for Building (12% of Construction)</td>
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<td>Classroom Technology</td>
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<tr>
<td>Instructional Lab Equipment (8% of construction @ 10 stations)</td>
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<tr>
<td>Simulation Lab Equipment (5% of construction @ 2 stations)</td>
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<tr>
<td>Basic Research Lab Equipment (20% of construction @ 2 stations)</td>
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<tr>
<td>TOTAL CAPITAL</td>
<td>11,150,000</td>
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## Statistics

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<th>FY15</th>
<th>FY16</th>
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<th>FY18</th>
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<td>40</td>
<td>40</td>
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<tr>
<td>Net Operating Results per Student</td>
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<td>40</td>
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<tr>
<td>Administrative Faculty FTEs</td>
<td>1.0</td>
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<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
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<tr>
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<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
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<tr>
<td>Faculty FTEs</td>
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**Total Capital: $12,690,000**
<table>
<thead>
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<th>Startup</th>
<th>Academic Year</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
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</thead>
<tbody>
<tr>
<td>PRO 1st Year</td>
<td>-</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
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<tr>
<td>PRO 2nd Year</td>
<td>-</td>
<td>-</td>
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<td>27</td>
<td>27</td>
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<td>PRO 3rd Year</td>
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<td>PRO 4th Year</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Total</td>
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<td>30</td>
<td>57</td>
<td>84</td>
<td>111</td>
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**Assumptions:**

- FT -- Drop Rate 1st Year: 10%
- FT -- Drop Rate 2nd Year: 0%
- FT -- Drop Rate 3rd Year: 0%
- FT -- Drop Rate 4th Year: 0%
<table>
<thead>
<tr>
<th>Office of Dean</th>
<th>Startup FY13</th>
<th>Enroll 1st Class FY14</th>
<th>First Graduates FY15</th>
<th>FY16</th>
<th>FY17</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>$211,381</td>
<td>$222,196</td>
<td>$234,126</td>
<td>$245,316</td>
<td>$253,239</td>
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<tr>
<td>Administrative Assistant 2</td>
<td>$84,541</td>
<td>$84,422</td>
<td>$83,347</td>
<td>$82,549</td>
<td>$81,192</td>
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</table>

<table>
<thead>
<tr>
<th>Department Chairs</th>
<th>Department of Pharmaceutical Sciences $165,715</th>
<th>$142,027</th>
<th>$168,528</th>
<th>$175,248</th>
<th>$182,258</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry, School of Pharmacy $165,715</td>
<td>$162,027</td>
<td>$168,528</td>
<td>$175,248</td>
<td>$182,258</td>
<td></td>
</tr>
<tr>
<td>Pharmacy Practice, School of Pharmacy $150,050</td>
<td>$142,027</td>
<td>$168,528</td>
<td>$175,248</td>
<td>$182,258</td>
<td></td>
</tr>
<tr>
<td>Associate Deans &amp; Professional Staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Services</td>
<td>$156,715</td>
<td>$168,027</td>
<td>$180,528</td>
<td>$187,248</td>
<td>$192,258</td>
</tr>
<tr>
<td>Assistant Dean - Enrollment Services</td>
<td>$156,715</td>
<td>$168,027</td>
<td>$180,528</td>
<td>$187,248</td>
<td>$192,258</td>
</tr>
<tr>
<td>Associate Dean - Administration General 3</td>
<td>$146,050</td>
<td>$148,027</td>
<td>$160,528</td>
<td>$167,248</td>
<td>$172,258</td>
</tr>
<tr>
<td>Associate Deans - Administrative General 2</td>
<td>$146,050</td>
<td>$148,027</td>
<td>$160,528</td>
<td>$167,248</td>
<td>$172,258</td>
</tr>
<tr>
<td>Financial Aid Coordinator</td>
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<td>$148,027</td>
<td>$160,528</td>
<td>$167,248</td>
<td>$172,258</td>
</tr>
<tr>
<td>School Registrar</td>
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<td>$148,027</td>
<td>$160,528</td>
<td>$167,248</td>
<td>$172,258</td>
</tr>
<tr>
<td>Admissions/Student Services Staff Technician 2</td>
<td>$146,050</td>
<td>$148,027</td>
<td>$160,528</td>
<td>$167,248</td>
<td>$172,258</td>
</tr>
<tr>
<td>Enrollment Program Staff Technician 2</td>
<td>$146,050</td>
<td>$148,027</td>
<td>$160,528</td>
<td>$167,248</td>
<td>$172,258</td>
</tr>
</tbody>
</table>

| Business Functions  |
|---------------------|-----------------------|--------|--------|--------|--------|
| School Business Officer | $146,050 | $148,027 | $160,528 | $167,248 | $172,258 |
| IT Functions  |
| Student Administration/Network Coordinator | $146,050 | $148,027 | $160,528 | $167,248 | $172,258 |
| IT Support Technician | $146,050 | $148,027 | $160,528 | $167,248 | $172,258 |

| Faculty |
|---------|-----------------------|--------|--------|--------|--------|
| Faculty Secretary  | $146,050 | $148,027 | $160,528 | $167,248 | $172,248 |
| Faculty Secretary  | $146,050 | $148,027 | $160,528 | $167,248 | $172,248 |

Total Administrative Salary $1,197,316 $1,208,168 $1,219,168 $1,230,857 $1,243,248

| Management and Administration | 146,050 | 148,027 | 160,528 | 167,248 | 172,248 |

| Administrative Salary and Benefits  |
|------------------------------------|--------|--------|--------|--------|
| Administrative Faculty Staff Count | 40     | 40     | 40     | 40     | 40     |
| Administrative Staff Payroll Costs | 146,050 | 148,027 | 160,528 | 167,248 | 172,248 |

Assumptions:

- 5% of Faculty Salary in 2006-2007 for Public Pharmacy Schools
- 10% of Appointments 12% Faculty Salaries

Appendix A: Faculty Salary Summary

D. ACTORS: Pharmacy Practice 2006-2007 Faculty Salary

<table>
<thead>
<tr>
<th>Department</th>
<th>Full-Time Equivalent (FTE)</th>
<th>Salary</th>
<th>Total Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy Practice</td>
<td>2.0</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>School of Pharmacy</td>
<td>1.5</td>
<td>$75,000</td>
<td>$75,000</td>
</tr>
<tr>
<td>Department of Pharmaceutical Sciences</td>
<td>1.0</td>
<td>$60,000</td>
<td>$60,000</td>
</tr>
</tbody>
</table>

Appendix B: Faculty Salary Summary

<table>
<thead>
<tr>
<th>Department</th>
<th>Full-Time Equivalent (FTE)</th>
<th>Salary</th>
<th>Total Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy Practice</td>
<td>2.0</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>School of Pharmacy</td>
<td>1.5</td>
<td>$75,000</td>
<td>$75,000</td>
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<tr>
<td>Department of Pharmaceutical Sciences</td>
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<td>$60,000</td>
<td>$60,000</td>
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</table>

Appendix C: Faculty Salary Summary

<table>
<thead>
<tr>
<th>Department</th>
<th>Full-Time Equivalent (FTE)</th>
<th>Salary</th>
<th>Total Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy Practice</td>
<td>2.0</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>School of Pharmacy</td>
<td>1.5</td>
<td>$75,000</td>
<td>$75,000</td>
</tr>
<tr>
<td>Department of Pharmaceutical Sciences</td>
<td>1.0</td>
<td>$60,000</td>
<td>$60,000</td>
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</table>
## University of Alaska School of Pharmacy Pro Forma

### FACULTY INSTRUCTIONAL EXPENSES

<table>
<thead>
<tr>
<th>Faculty Category</th>
<th>Startup FY 1</th>
<th>Total 1st Class FY 1</th>
<th>2nd Year FY 2</th>
<th>3rd Year FY 3</th>
<th>4th Year FY 4</th>
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</thead>
<tbody>
<tr>
<td>Behavioral &amp; Administrative Sciences</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Biomedical Sciences (May Be Divided Over Multiple PT Faculty)</td>
<td>1.00</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
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<tr>
<td>Pharmaceutical Sciences (May Be Divided Over Multiple PT Faculty)</td>
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<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
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<tr>
<td>Pharmacy Practice</td>
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<td>2.00</td>
<td>2.00</td>
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<tr>
<td>Total Faculty</td>
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<td>7.00</td>
<td>8.00</td>
<td>9.00</td>
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<tr>
<td>Total Students FTE</td>
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<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
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<td>FTE Student/Faculty Ratio (Target = 6)</td>
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<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
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<td>Salary (Weighted 10% Positions Professors; 20% Positions Associate Professors; 50% Positions Assistant Professors)</td>
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<td></td>
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<tr>
<td>Administrative Director/Dean</td>
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<td>$132,000</td>
<td>$137,340</td>
<td>$142,904</td>
<td>$148,547</td>
</tr>
<tr>
<td>Biomedical Sciences</td>
<td>$126,078</td>
<td>$132,000</td>
<td>$137,340</td>
<td>$142,904</td>
<td>$148,547</td>
</tr>
<tr>
<td>Pharmaceutical Sciences</td>
<td>$126,078</td>
<td>$132,000</td>
<td>$137,340</td>
<td>$142,904</td>
<td>$148,547</td>
</tr>
<tr>
<td>Pharmacy Practice</td>
<td>$126,078</td>
<td>$132,000</td>
<td>$137,340</td>
<td>$142,904</td>
<td>$148,547</td>
</tr>
<tr>
<td>Salary Expense</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral &amp; Administrative Sciences</td>
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<td>$132,000</td>
<td>$137,340</td>
<td>$142,904</td>
<td>$148,547</td>
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<td>$285,965</td>
<td>$297,014</td>
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<td>$274,500</td>
<td>$285,965</td>
<td>$297,014</td>
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<td>$1,156,619</td>
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**Assumptions:**
- Assumes All Faculty Classified as United Academic (Pharmacy education)
- AAUP Profile of Pharmacy Faculty 2009/2010 For Public Pharmacy Schools 12-yr Appointments @ 75% Paramec
- Faculty = Professor Rank a Fair 50% Lines
- Faculty = Associate Professor Rank For 25% Lines
- Faculty = Assistant Professor Rank For 25% Lines
- Annual Salaries Inflated by 4.9%
- Fringe Benefits at 31.9%
<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Startup FY13</th>
<th>Enroll 1st Class FY14</th>
<th>PY15</th>
<th>PY16</th>
<th>PY17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accreditation Costs/Feas &amp; Professional Dues</td>
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<td>$52,000</td>
<td>$54,060</td>
<td>$56,243</td>
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<td>Equipment Purchase, Rental, Repair and Maintenance</td>
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<td>$14,000</td>
<td>$15,818</td>
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<td>$8,000</td>
<td>$9,322</td>
<td>$10,800</td>
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<td>Faculty Supplies including instructional ($3,000 FTE)</td>
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<td>$4,000</td>
<td>$4,800</td>
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<td>$5,440</td>
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<td>$11,000</td>
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<tr>
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<td>$12,500</td>
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<td>Hospitality</td>
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<td>Advertising and Promotion</td>
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<tr>
<td>Printing, Mailing, Office Supplies, etc.</td>
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<td>$11,250</td>
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<tr>
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<td>General Operating Costs Per FTE</td>
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<td>$14,080</td>
<td>$15,071</td>
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Assumptions:
- Expenses based on benchmarks
- Expenses inflated by 4% per year
<table>
<thead>
<tr>
<th>Expense Category</th>
<th>Startup</th>
<th>Enroll 1st Class</th>
<th>First Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY13</td>
<td>FY14</td>
<td>FY15</td>
</tr>
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<td>Fringe Benefits @ 43%</td>
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<td>Library Staff Positions</td>
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**Assumptions:**

- Salary Table:
  - AACP Profile of Pharmacy Faculty Salaries by Race, Gender and Institution Type for Calendar Year Appointments - Private Institutions
  - Medical Librarian = Librarian at $45,204
  - Inflated Salary by 4% each year
  - Fringe Benefits rate of 20% per year

- Expenses based on benchmarks
- Inflated Expenses by 4% each year
### University of Alaska School of Pharmacy Pro Forma

#### CAPITAL EXPENDITURES

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<th>Description</th>
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<td>Simulation Lab Equipment (allocation @ 75 stations)</td>
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**Assumptions:**
- No Donations
APPENDIX B: List of Recommendations

Recommendation 1 - Each 4-year campus should appoint a pre-pharmacy advisor and publish the contact information on their WEB site and academic program announcements.

Recommendation 2 - The catalogues of each 4-year campus should include a section on pre-pharmacy that includes:
- Single, coordinated pre-pharmacy section listing the recommended UA courses on each campus; and
- A statement urging those students interested in pharmacy to consult with the designated pre-pharmacy advisor on their campus (associated community campus students should contact their 4-year campus pre-pharmacy advisor).

Recommendation 3 - The three 4-year campuses should develop an intermediate level human anatomy and physiology course requiring freshman general biology.

Recommendation 4 - Given the size of the underserved population in Alaska, the UA should prepare a HSRA grant proposal to develop a program for academically capable Alaska students to enhance their preparation for admission to all doctoral health professions (Pharmacy, Medicine, Dentistry, Physical Therapy, Occupational Therapy).

Recommendation 5 - The UA System should develop a Request For Proposals (RFP) to solicit a partnership with an existing accredited program whose experience includes operating satellite campuses that will meet the unique needs of Alaska students. If a suitable partner is not identified, the UA should consider assisting Creighton University with the enrollment of Alaska students into that school’s distance program.

The following recommendations, 6-23, apply only to the option of developing a pharmacy school if the University of Alaska chooses to pursue that option.

Recommendation 6 – The UA Board of Regents, upon the recommendation of the System Administration and in consultation with the universities’ administration, should determine the overall mission of pharmacy education early in the development process. The mission should focus on offering either a professional education program exclusively, or a broader and more comprehensive program that includes both a professional program (the Pharm.D.) and a graduate program (the Ph.D.) with the commensurate research to support both levels of education.

Recommendation 7 – The UA administration should begin the strategic planning process for establishing the new pharmacy program prior to securing the Founding Dean. This will ensure that the new program’s developmental stages: 1) are founded upon the basic mission and tenants of the University; 2) can serve as a communication vehicle for the entire University community; and 3) will provide direction in the recruitment of the Founding Dean.

Recommendation 8 – Once the decision to develop a pharmacy program is adopted, UA’s Chancellor should officially notify the NWCCU of the institution’s intention to develop pharmacy first-professional doctoral education and undertake the required processes to secure documentation that expressly states that the UA’s accreditation status with NWCCU permits it to offer professional doctoral degree programs.
Recommendation 9 – The Regents should establish pharmacy as a separate academic unit of UA, headed by a dean and not part of another college.

Recommendation 10 – The Dean of Pharmacy should be organizationally responsible to the Provost and at a level equivalent to that of the other academic unit deans. As the chief academic officer, the Provost should be charged to work collaboratively with the Dean in overall academic planning, meeting the various accreditation requirements, and in securing adequate resources to promote overall growth and development of the academic programs. The job descriptions for the Dean should clearly delineate his duties and responsibilities. This reporting relationship must be clearly depicted in the UA organizational chart.

Recommendation 11 – All UA policies regarding faculty governance, curriculum determination, admissions policies, and hiring of faculty should be reviewed and revised—as appropriate and in conformance with the overall governance structure of the University—to provide pharmacy’s faculty and administration with control over its faculty bylaws, student admissions, curriculum, and hiring standards.

Recommendation 12 – Once UA makes a formal decision to establish a pharmacy program, the Chancellor should identify interested parties (i.e., pharmacists from a variety of practice areas, representatives from state pharmacy and other health societies, and administrators of hospitals and large nursing homes) to serve the College or School as partners in advising, planning, identifying, and screening potential candidates for the Founding Dean position.

Recommendation 13 – UA administrators should consider effective ways for the health professions undergraduate, graduate, and first-professional doctoral programs, including those of the new pharmacy program, to develop interprofessional education for their students beginning in the first professional year and continuing throughout all four years. The health professions programs should be encouraged to work collaboratively to cultivate and expand extramural clinical affiliations by emphasizing interprofessional teamwork as a central component to the training of all students.

Recommendation 14 – The College’s or School’s Dean’s Office should include associate/assistant deans for: 1) the professional curriculum and programmatic outcomes; 2) student affairs—including recruitment, admissions, services; and 3) experiential programs.

Recommendation 15 – The College or School’s basic organizational structure should include two departments (Pharmaceutical Sciences and Pharmacy Practice) to appropriately engage and develop faculty teaching, scholarship, patient care, and institutional and professional service. The former would include the Ph.D. biomedical, pharmaceutical, and administrative, behavioral and social scientists and the latter the practice faculty (clinical sciences and pharmacy practice).

Recommendation 16 – The Provost, with Chancellor approval, should prepare a job description for the Dean before advertising and recruiting commences. The job description should define the elements of authority and responsibilities, reporting relationships, and characteristics the Institution is seeking in the College or School of Pharmacy leader.
Recommendation 17 – The UA’s administration should decide whether to maintain program-based or central administration-based administrative support services. The services that should be required include: accreditation services (clerical and data collection/analysis for NWCCU and ACPE); business services (budgeting, contract administration for experiential sites, purchasing, facilities management, travel, management information, etc.); student services (recruitment, application processing, management of applicant interviews, admissions staffing, student records—both academic and professional practice experiences, scheduling classes and experiential rotations, advising, ADA services, etc.); library resources; information technology; and development.

Recommendation 18 – The UA should strategically plan for a 3-4 professional program structure that prefers applicants who will have received a baccalaureate degree with a specified minimum number of sciences and advanced mathematics courses for admission.

Recommendation 19 – UA should plan for an entry class size of approximately 30 students into the last four years of the professional program. If a larger student population is desired, the institution should plan its facilities accordingly and then expand only when additional resources for faculty and clinical sites can be secured and only after full accreditation is achieved.

Recommendation 20 – A ratio of eight students enrolled per one full-time sciences and practice faculty member is an appropriate planning premise. This ratio does not include program administrators.

Recommendation 21 – Regardless of which University is responsible for offering the Pharm.D degree program, the fourth professional year must be based in Anchorage to take advantage of the number of health facilities and advanced preceptors that exist in that area to provide the APPEs.

Recommendation 22 – Early planning for a College or School should include input from the Alaska Medical Library. The UA should assist that facility and its statewide services in supporting pharmacy education by providing resources sufficient for adding pharmacy-specific on-line databases and journals while simultaneously maintaining the medical reference and journal resources that are also critical to a pharmacy program.

Recommendation 23 - If a PharmD program is developed, its host location would be determined by the leaders of the University of Alaska universities and statewide system. This decision should include a statewide mandate for experiential education. Consideration should be give to 1) access to clinical sites, particularly in P3 and P4, 2) convenience for students, and 3) the opportunity for P1-P3 students to integrate with medical, nursing and other health professions students. If the mission of pharmacy education includes graduate and extensive faculty research productivity, strong affiliations and collaborations should be developed with biomedical scientists in Anchorage and Fairbanks to provide the variety of disciplines that are necessary and vital to making pharmacy graduate education and research viable.
APPENDIX C: List of Pharmacy Education Options

There are four pharmacy education options identified in this report for consideration by the University of Alaska system. Many variations on each of these are possible, and more than one option may be selected for implementation.

- Institutional partnerships for pharmacy education
  1. Host established distance pharmacy program
  2. Engage an out-of-state pharmacy school system in a robust, interactive partnership, with satellite sites in Alaska
  3. Participate in a multi-state health professional consortium with an integral Alaska hub
- In-state school
  4. Develop an Alaska pharmacy school

Acknowledgement

The Consultant wishes to acknowledge the preliminary work of individuals from the University of Alaska – Anchorage for their assistance in preparing this report. First, Ms. Jan Harris (Vice Provost for Health Programs) provided a focused scope of work that helped pinpoint the questions addressed by the analysis. Second, Ms. Debra Cieplak, R.Ph., (Coordinator, Pharmacy Technology Program) completed a background report on Alaska pharmacist manpower data; the information and analysis provided by her work was extremely helpful in identifying important information and data sources for the Consultant’s report. Ms Joan Harings (Director, Accounting and Budgeting) provided UA salaries, benefits and financial operations data for the pro forma budget. Dr. Chris Bradberry (Dean School of Pharmacy and Allied Health, Creighton University) shared information about his program and the operations of the Distance Pathway program. Finally, Ms. Nancy Davis of the Alaska Pharmacy Association, and Dr. Robert Sewell of the Department of Health and Social Services provided much needed data and perspectives on the unique pharmacist manpower needs of Alaska.
Addendum

This report was prepared for the University of Alaska. For more information, please contact University of Alaska Associate Vice President for Health Karen Perdue at karen.perdue@alaska.edu or University of Alaska Anchorage Vice Provost for Health Jan Harris at anjch1@uaa.alaska.edu.

Please provide written comments to karen.perdue@alaska.edu, copying anjch1@uaa.alaska.edu. Thank you.