

**UW-Madison  
School of Pharmacy**

**Assessment Report**

**2002-2003  
Academic Year**

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# ***2002-2003 Assessment Report School of Pharmacy***

## ***The Year In Review***

The School of Pharmacy's large-scale assessment activities continue to be largely initiated and carried out by the Associate Dean for Student Affairs and an Assistant to the Dean, and by staff members involved with the various aspects of the experiential component of the professional (Doctor of Pharmacy) curriculum. The School's Academic Planning Council oversees the School's assessment processes and long-term plans; this information is also shared with the School's Educational Policy and Planning Committee.

The following is a brief report on each of the assessment methods utilized during the 2002-2003 academic year.

### **Academic Performance Assessment**

In 2001, the School of Pharmacy (SOP) obtained funding from the UW-Madison Assessment Council to examine factors associated with academic performance levels of our Doctor of Pharmacy students. The purpose of the academic performance assessment was to better inform faculty and administration about key factors and sequences of events that contribute to academic performance in that curriculum. This information will be useful in improving our advising of pre-pharmacy and pharmacy students and in better informing the admissions process in future years. Further, an improvement in the efficiency of progression of students through the program should be achievable by being better able to recognize "at risk" students via the predictive model that will be built; earlier intervention and academic support for such students may improve efficiency and retention rates.

Creation of Database Course grades for all Doctor of Pharmacy (PharmD) students admitted since the fall of 1997 (when the entry-level PharmD program began) were obtained from the Retention and Longitudinal Studies Dataviews of the ISIS system. Procedures were developed to have a Student Services' staff member access the ISIS system and download student semester grades from a core group of pharmacy courses. These core courses consist of the classes taken by pharmacy students in the first three years of the PharmD program. Once grades were obtained, a faculty member (Associate Professor David Mott) developed computer programs to calculate semester, year, and cumulative grade point averages for each student enrolled in the entry-level PharmD program.

Data documented in pharmacy school application materials was identified for each PharmD student admitted to the School since Fall 1997. Procedures were adapted to create electronic versions of past and current data obtained from application materials. It will become routine to create electronic versions of application data that can be used to update the student performance database when a new class of students is admitted to the School. Also, faculty and staff at the School have been identified to serve on a committee to review information collected via application materials. This committee will help identify information that may be added or removed from application materials as needed for assessment purposes.

Using student identification numbers, information obtained from application materials for each student was merged with academic performance data to create the SOP academic performance database. This database will be used for future assessments of factors associated with academic performance in the SOP. Also, procedures are in place to continually update this database after each

academic semester.

Factors Associated with Academic Performance Currently, Dr. Mott is using the data to identify characteristics of students that are associated with academic success in the entry-level Doctor of Pharmacy program. The first phase of the analysis is looking at correlates of first-year (in the pharmacy program) grade point average. Additional analyses will examine correlates of academic probation in addition to correlates of academic performance in individual courses or groups of courses (e.g. the pharmacology sequence).

#### **Quantitative Assessment of Math Skills**

For the past four summers (2000-2003), students newly admitted to the School of Pharmacy (both to the professional (PharmD) and the Pharmacology/Toxicology undergraduate programs) have been provided with mathematics review materials which include the types of applications of math principles deemed essential for success in School of Pharmacy programs. Students are strongly encouraged to review the material prior to the beginning of classes in fall.

With the assistance of the Mathematics Department, a 75-minute exam was given again this year (also for the fourth consecutive year) at new student orientation to assess student math skills. Student proficiency in 2003 on this exam far surpassed student performance in each of the previous three years; of 17 calculus problem-solving skills that have been longitudinally tracked in the four years, the class that begin studies this fall scored more proficient than previous years' classes in all but one skill category. (One reason for such may be the School's move from a course-based calculus requirement to a content-based calculus requirement during the 2001-02 school year. It has been stressed to new students to compare the content of their calculus course work with the list of our required calculus topics and to take the steps necessary to make sure that they are competent in the required topics).

Aggregate class performance from the orientation assessment is shared with all faculty members who teach first-year pharmacy courses having mathematical content. Students were also asked to provide information about their mathematics background, including the highest level of math course taken, and when and at what university/college it was taken. Information regarding past enrollment in high school advanced placement mathematics courses is also gathered. This individual information, as well as individual-specific performance on the orientation mathematics assessment, is provided to the class advisor so that individuals with apparent mathematical deficiencies can develop mathematics improvement plans.

#### **Course/Teaching Evaluations**

A uniform student course/teaching evaluation instrument has been in use in the School of Pharmacy since Fall 1998. Faculty are provided with an analysis of the rated section of the evaluation, as well as any written comments made by students. The teaching evaluations continue to be used by the administration in the merit review process.

#### **Town Meetings**

An informal town meeting format was initiated in 1999 to gather student opinions and suggestions and respond to student questions and concerns, as well as to keep students informed of and involved in the activities of the School. These one-hour breakfast or lunch meetings provide the Dean with a setting to bring students up-to-date on matters of interest to them, and gave students a chance to comment on their respective programs, building and library issues, clerkship concerns, etc. Unscientifically, they have served as a radar to capture feedback regarding School of Pharmacy student climate.

As has been recent tradition, during the 2002-2003 academic year, all members of the first, second, and third-year classes in the entry-level Doctor of Pharmacy program and all students in the B.S. Pharmacology and Toxicology program were given the opportunity, during either the Fall or Spring semester, to meet as a group with the Dean. (Fourth-year Doctor of Pharmacy students are not invited to participate in such as they are occupied doing clerkship work in locations throughout the state in their fourth year).

Student remarks were recorded at each meeting by a member of the Student Services staff not involved in advising. Information taken from the town meetings was discussed as needed with advisors, course coordinators and other faculty involved in the courses, and distributed to the Associate Dean for Student Affairs and, as applicable, to the Chair of the School's Educational Policy and Planning Committee. A total of 35 students, representing all classes in each program, participated in the town meetings during the 2002-2003 academic year. The future of town meetings will be a decision of the new dean when she assumes the office in October 2003.

### **Objective Structured Clinical Exams (OSCEs)**

Objective Structured Clinical Exams (OSCEs), have been utilized for the past five years as a tool for assessing students' clinical skills. An OSCE is composed of a series of stations that students move through, solving pharmacy-related problems or performing pharmacy-related activities. Beginning with a Doctor of Pharmacy student's second year, an OSCE is held each semester in conjunction with the pharmacotherapy course, and is increasingly weighted throughout the sequence based on the degree to which the didactic material will be applied during clerkships. A capstone clerkship OSCE is also administered between the 4th and 5th blocks of the fourth PharmD year. If a student is unsuccessful in portion(s) of this capstone OSCE, time then allows for remedial work that is assigned in the module(s) of unsuccessful performance.

The OSCEs serve as both an evaluation and teaching tool. Students value this examination experience as preparation for real-life clinical encounters and pharmacy licensing exams. Faculty also benefit by gaining insight into the effectiveness of course content and delivery, as well as development of skills during clerkships.

Preliminary analysis suggests that the OSCE evaluates professional competencies different from, but complementary to, traditional didactic examinations. The OSCE provides a formative and summative measurement of how a student applies knowledge previously learned, and provides a measure of student skills and response when confronted with a patient or clinical situation. It has been a method of assessing process as well as product of clinical thinking.

Since the implementation of the OSCEs as an assessment tool, an OSCE Advisory Panel has been created to assist in developing cases and evaluation tools, and assess the overall effectiveness of the exam process in preparing students for practice. This assessment format is also incorporated into the 718-638 *Nonprescription Medications* elective course for 3<sup>rd</sup>-year PharmD students.

### **Student Portfolios**

Student portfolios have been in use since 1996. Portfolios are used during the fourth-year clerkship courses to measure and track student progress toward meeting 16 professional practice competencies. Students assess their skills prior to the start of their first rotation and, thereafter, following each rotation. The clinical instructor also evaluates the student on these same 16 professional practice competencies (after the first set of rotations, clinical instructors have access to

previous clinical instructor(s)' ratings for a particular student regarding these 16 competencies, to give the pharmacist an idea of how the student has been performing in previous block(s)). Student assessments are compared with clinical instructor evaluations, and are used to track individual student progress and overall class progress.

### **Methods to Ensure Quality of Experiential Sites**

As in the past, all experiential sites are initially visited by School of Pharmacy faculty or staff for the purpose of viewing the pharmacy site, meeting with the clinical instructor, reviewing planned clerkship activities, and answering clinical instructor questions. Follow-up visits are also made periodically following the initial visit, and these visits are documented on a form developed by the School of Pharmacy's Experiential Learning Program (ELP) office.

To ensure that the experiential sites meet the appropriate standards and provide an environment in which the students can develop their professional competencies, the ELP office has developed a quality assurance program which includes the establishment of a Clerkship Quality Review Council. In the past, the Pharmacy Internship Board (PIB) served as an external quality review body to monitor and advise the ELP on issues related to the assessment of competencies during clerkships. However, since the state legislature discontinued funding for the PIB as of December 2001, a Quality Review Council has been developed to advise the School on clerkship issues and to provide feedback to the ELP.

In addition, all School of Pharmacy clerkship sites are required to complete an action plan, which documents how the site will accomplish required clerkship activities, as well as how it will provide students with the opportunity to develop competency in the 16 professional practice areas. Action plans are reviewed by and kept on file in the ELP office. These plans will soon be included in the respective sites' clerkship web page. This will allow the sites to update and maintain their action plans. If a site receives negative feedback, the ELP Director will contact the site to 1) review the feedback and 2) update their action plan to improve the clerkship rotation.

Forums with clinical instructors had been held annually in each of the six (Madison, Milwaukee, La Crosse, Wausau, Eau Claire, Green Bay/Appleton) clerkship regions for the purpose of obtaining feedback from pharmacists who serve as clinical instructors, and to discuss clerkship issues. Due to budget constraints, these forums will now be limited to one annually in Madison and one that will rotate between the five other hubs (the 2004 location will be Milwaukee). When possible and appropriate, suggestions are incorporated into the program prior to the start of the next academic year.

During the first two years of the pharmacy program, students are required to maintain a journal of the activities in which they are involved during their introductory clerkships. The journals are read and graded by the course coordinators. In the third and fourth years, students are required to complete an evaluation of their clerkship rotation at the conclusion of each rotation. The evaluations are reviewed by the experiential course coordinators. These clerkship evaluations are used to help determine a site's continued viability in the program. Sites receive student feedback from fourth-year clerkships and are expected to improve their sites based on the feedback provided.

### **4<sup>th</sup>-Year PharmD On-line Clinical Instructor Survey**

For the first time, the UW Survey Center (UWSC) was employed by the School to administer an online survey of its clinical instructors who have been involved in one or more 8-week rotation in the last year of students' fourth and final year in the PharmD program. A response rate of 60.2%

was achieved (225 completed interviews of 374 such 4<sup>th</sup>-year clinical instructors). This survey was conducted between April and June of 2003.

This 10-question survey asked recipients, on a five-point scale, to judge the appropriateness of the clerkship course's objectives, the goals of clerkship required assignments, the School's administration of the clerkship program, the clerkship manuals' usefulness, and the availability of clerkship coordinators. Free-response questions allowed clinical instructors to comment on the strengths and weaknesses of students who had been assigned to them, as well as general comments.

This assessment is planned as a regular investment by the School; it is to be next administered in the February-March 2004 time frame (at which time it is planned on future calendars) in preparation for the spring town meetings (previously mentioned) with clinical instructors state-wide in which policies and procedures for clerkships are discussed and quality improvements are introduced.

### **Doctor of Pharmacy Fourth-Year On-Line Assessment Survey**

For the second year, a web-based survey of the Doctor of Pharmacy program was administered in the spring of 2003 by the UWSC over the Internet between April 14 and June 9, 2003. All 108 traditional fourth-year Doctor of Pharmacy students, whether graduating in May or August 2003, were invited to participate via email and were provided web-based instructions. Seventy-seven (77) completed surveys were recorded, resulting in a response rate of 71.3% (77/108).

The survey was unchanged from its 2002 structure and content and asked levels of satisfaction with the Doctor of Pharmacy program, including ratings of academic and career advising, ratings of the quality of instruction in required and elective didactic course work, ratings of the physical resources of the School, and ratings of the Power Pharmaceutical Library's resources and services. Various clerkship courses/experiences were rated, as were a variety of climate issues within the School. Students were asked to rate the quality of their pre-pharmacy program, to describe their non-academic work commitments during their student careers, and to give their short- and long-term career aspirations. Students self-evaluated the Doctor of Pharmacy program's ability in developing eleven core professional competencies.

The School plans to again use this web survey near the conclusion of this academic year (2003-04) and in subsequent years to continue to build and learn from longitudinal comparisons.

### **Exit Interviews**

In April to June, 2003, exit interviews (primarily done via phone or in -person) were conducted via Student Services' personnel with samples of fourth-year Doctor of Pharmacy students and seniors in the Pharmacology/Toxicology program. Both spring and summer 2003 PharmD graduates were in the pool from which students were randomly invited to participate in such; Pharmacology/Toxicology interviewees were May or August 2003 graduates of that program. A few students chose to participate only by answering the interview questions via email (all students, in both exit interview processes, were emailed the list of interview questions at the time they were invited to participate).

The PharmD interviews consisted of the same questions posed in 2002—asking students to expound on their opinions of pre-pharmacy and required pharmacy course work, experiential education topics, professional electives, concerns about entering the pharmacy profession, short-and long-term career plans, and areas of professional strength and weakness. Academic and career advising

of the School were rated, as was the School of Pharmacy climate (students' sense of belonging to the School, the supportiveness of the learning environment, etc.) and student perceptions on their satisfaction with faculty and student diversity. Students were asked extensively about their work experiences during school, and its effects, in their estimation, on academic performance. Students were asked to give the Doctor of Pharmacy program an overall numerical rating, to explain what were the key factors that first attracted them to the School and its professional program, and their views of the PharmD program's current strengths and weaknesses.

Twenty PharmD students were originally and randomly invited to participate (of 108 PharmD graduates); four students never responded or failed to keep scheduled appointments for the exit interview. The effort resulted in 16 completed exit interviews (16/108 = 14.8%). Of the 11 targeted minorities in the class, seven were invited to interview (for the purpose of oversampling the student minority population); five minorities actually completed exit interviews. Within the random selection, attempts were made to proportionately seek input from female and male students, based on their representation in the class. Ten interviews were conducted with females (this includes five female minorities). Females represented approximately 65% of the class and 62.5% of the final interview sample; six interviews were conducted with male graduates. Males represented approximately 35% of the class and 37.5% of the final interview sample.

The Pharmacology/Toxicology interviews were similarly structured (using the same questions as 2002), with some questions changed to learn why students had chosen that degree program, their specific areas of interest within the field, and whether that curriculum had met their expectations. Input on the value of independent study—strongly encouraged in that major—was sought, as was an overall numerical rating on the Pharmacology/Toxicology program, and views on its strengths and weaknesses. Five students graduated with a Bachelor of Science degree with the Pharmacology/Toxicology major in May or August; all had been invited to participate in an exit interview. All five of these students participated. An Assistant to the Dean who had no involvement in the Pharmacology-Toxicology program carried out these interviews.

The results of both sets of these exit interviews were compiled by an Assistant to the Dean and distributed to the Dean and the Associate Dean for Student Affairs.

Similar oral exit interviews had previously been conducted with samples of students on the verge of graduation from 1998-2000 and in 2002 (both from the Doctor of Pharmacy program and from Pharmacology/Toxicology). Exit interviews were not conducted in 2001.

### **Licensure Examinations**

UW School of Pharmacy graduates continue to be successful on the North American Pharmacist Licensure Examination (NAPLEX), scoring above the success rate of graduates nationally. Ninety-eight percent (98%) of the UW-Madison pharmacy graduates who took the NAPLEX in 2002 passed the examination; the national success rate for this same time period was 84.7% according to the State of Wisconsin's Department of Regulation and Licensing exam office.

The Multistate Pharmacy Jurisprudence Exam (MPJE), first given in January 1999, combines elements of federal pharmacy law and Wisconsin pharmacy jurisprudence. During the first three years this exam has been given (1999-2001), the passing rate of UW-Madison School of Pharmacy graduates seeking licensure in Wisconsin was considerably higher than that of pharmacy graduates from other states seeking licensure in Wisconsin (1999: 100% to 82.7%; 2000: 100% to 96.6%; 2001: 100% to 95.6%). In 2002, this same exam was passed by 94.9% of University of Wisconsin

School of Pharmacy graduates but at a higher rate by out-of-state candidates (97.5%). Surprising, UW School of Pharmacy graduates who attempted *out-of-state* MPJE tests achieved greater success in 2002–96.9%—than the aggregate pass rate for the in-state MPJE.

Both the NAPLEX and the MPJE are administered in close proximity to a PharmD student's graduation from the School. Further, the Wisconsin Pharmacy Examining Board administers the State Board Practical Examination. The exam assesses the candidate's ability to communicate medication information to patients or consumers. Candidates are required to provide two patient consultations; each consultation includes a new and a refill prescription order. Candidates are given six minutes to prepare for the consultations (with medication references) and then six minutes to provide each consultation. A minimum score of 75 must be achieved on both of the consults to pass the exam.

### ***Specific Changes and Looking Ahead***

Continual improvements are made to the School's curricula, partially attributed to the cumulative input of past assessments. An example of a significant specific change would be the revision of the PharmD curriculum, implemented with the PharmD class of 2007 (which commenced their studies this fall). The School of Pharmacy faculty expend considerable effort to design the entry-level PharmD curriculum to be coherent, sequentially whole, and with course experiences being interdependent. In that light, and to provide an optimal educational experience for students, it has further been decided that all courses specifically required in the entry-level PharmD curriculum (which include bacteriology, physiology, biochemistry, and biostatistics) must be completed at UW-Madison, effective for enrollment in the School in Fall 2005 and thereafter.

In addition to the School's assessment procedures in-place (described to this point in the report) that will continue, the following are planned for the coming year:

#### **Alumni/Employer Surveys**

- The School's Academic Planning Council decided in 2003 that near future alumni survey efforts should target recent PharmD graduates (the classes of '01 and '02 are currently proposed). A draft instrument for piloting with this population is under development and planned to be used by the end of 2003.
- The Pharmacy Alumni Association (PAA) is planning an alumni survey as well—a more inclusive one than that described above—that will seek to learn how pharmacy alumni in general are connected to and stay in communication with the School, and how the PAA can better serve this population.
- Currently the School's Quality Review Council (QRC) is developing an employer survey that will focus on learning employers' perspectives of how the pharmacy workplace has changed or is changing due to the way the UWSOP currently trains its PharmD graduates and whether employers feel the School is “over training”, “under training” or is right on target in its preparation of PharmDs for the current and future employment environment. The QRC survey will incorporate these questions as well as ask employers how adequately our former students perform on the domains covered by the School's 16-point PharmD competency evaluation tool (such an instrument is eventually expected to be used 2 and 5 years post-graduation—the survey will be piloted with employers of 2001 PharmD graduates).

#### **Attachments**

- “School of Pharmacy Student Outcomes Assessment Activity in 2002-2003” (*Attachment A*).
- Per the Provost’s request, included is “UW-Madison Program Reviews: Summary of Reviews Reported in the Past 10 Years” (*Attachment B*). As no program reviews in the School of Pharmacy were completed in 2002-2003 and none are planned for 2003-2004, no editing here was necessary. All programs have been reviewed in the past 10 years.
- Similarly, “UW-Madison Accreditation Reviews, Status Report Effective Fall 2002” (*Attachment C*), is returned unchanged—the American Council on Pharmaceutical Education (ACPE) is still scheduled to review the School’s PharmD program in the 2005-2006 academic year.

(Attachment A)

School of Pharmacy  
Student Outcomes Assessment Activity in 2002-2003

Professional (PharmD) Program -- Direct Indicators

National Exams (near or post-graduation)	Local Exams (post-graduation)	Capstone Course(s)	Embedded Testing	Student Portfolios (projects)	Review Theses	Performance Evaluation	Pre-Test/ Post-Test	Student Assessment of Learning Gains
2 exams (NAPLEX and MJPE) required for licensure	State Board Practical Examination (a consultation exam (offered five times per year)	Annually--fourth-year PharmD curriculum/ clerkships considered "capstone"	OSCE format presented in one common third-year PharmD elective course: (Phm Sci 718-638 <i>Nonprescription Medications</i> )	Case presentations in fourth-year required clerkships; projects in fourth-year elective (specialty) clerkships; drug information questions in all fourth-year clerkships		OSCE each semester for second- and third-year students. Annually for fourth-year students. OSCE not given to first-year students.		

Professional (Pharm.D) Program – Indirect Indicators

Town Meetings	Student Surveys	Exit Interviews	Alumni Surveys	Employer Surveys	External Reviews
Held annually with each class (not with fourth-year class); (also held with Pharm/Tox undergraduates)	Annually, with graduating students, online	Annually, with random sample of graduating students; (also done with Pharm/Tox undergraduates)	Schedule to be reviewed by School's Academic Planning Council	To begin in 2003-04 year with employers of 2001 PharmD graduates via the School's QRC	Every 6 years (accreditation); next ACPE PharmD Review scheduled for 2005-2006