

# Developing 3:4 Dual Degree Programs: Linking Undergraduate and Professional Education

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The University of Maryland School of Pharmacy has established 3:4 dual degree programs with a number of area universities in order to identify and recruit outstanding applicants for its Doctor of Pharmacy (PharmD) program. Under these agreements, students fulfill the requirements for the Bachelor of Science and Doctor of Pharmacy degrees concurrently. Students complete three years of their undergraduate education at one of the participating institutions and apply for admission to the School of Pharmacy. If admitted to the school, the credits they earn during the first year of the PharmD curriculum are applied by their undergraduate institutions towards the completion of their bachelor's degree. This approach has potential of impacting on a significant number of individuals interested in pursuing careers in pharmacy. These programs encourage highly motivated and well-prepared students to seek professional education earlier in their academic career.

## INTRODUCTION

During the 1998 application cycle, the University of Maryland School of Pharmacy experienced an 18 percent reduction in the number of applications to its Doctor of Pharmacy (PharmD) program from 527 to 433 for a class size of 100 students. This experience was not unique to the University of Maryland. Based on AACP statistics, schools and colleges of pharmacy across the country experienced similar reductions in the number of applicants<sup>(1,2)</sup>. In response to this declining applicant pool, the authors studied enrollment management issues and identified possible reasons why students were not interested in entering the pharmacy profession in general and in the University of Maryland specifically.

The authors found that one potential barrier was student unwillingness to leave their undergraduate institution before receiving their bachelor's degree. The authors found that many students in their third year of college felt they needed to stay an additional year to complete the BS degree even though the BS was neither required by the school for admission nor by the profession for pharmacy licensure. As with most schools of pharmacy, the University of Maryland requires the completion of 63 credit hours of prepharmacy course work which student can complete typically in two or three years of undergraduate education. However, several students in their junior year felt a need (or sometimes their parents felt a need) to complete the requirements for the bachelor's degree before moving into professional education. Thus, a number of students delayed matriculation into the pharmacy program just to fulfill the requirements for the bachelor's degree.

Another barrier was student perception of the length of the academic training for the PharmD degree. Many undergraduate students interviewed during the evaluation process viewed pharmacy education as taking eight years to complete (four years undergraduate and four years professional education). They stated that compared to other career opportunities, eight years was too long a period of time. They stated that they could

obtain well paying jobs in computer technology or in business with fewer years of higher education. Thus, they were reluctant to consider additional professional education.

Another group of individuals reflected that early in their undergraduate education they were interested in professional education. However, as they reached the end of their four years of undergraduate education, they wanted to take additional time off, to join the work force to pay off loans, or to pursue other interests. Unfortunately, many of these students were "lost" to pharmacy since they never returned to their initial area of interest - pharmacy.

## PROGRAM DESCRIPTION

In response to these potential barriers, the University of Maryland developed (and continues to develop) 3:4 dual degree programs with several area universities. These programs are structured so that students complete three years of their undergraduate education at a participating institution. Students then apply for admission to the School of Pharmacy. If they are admitted to the pharmacy program, the credits they earn during the first year of the PharmD curriculum are recognized by their undergraduate institution and are applied toward completion of their BS degree. The School of Pharmacy does not get involved with certification of BS requirements. The home campus awards the BS degree. This approach allows students to meet their goal of completing their bachelor's degree and thus addresses the first barrier to pharmacy education as discussed above. Under these agreements, students complete both programs in seven years rather than four years for the BS degree and another four years for the Doctor of Pharmacy degree. Students are able to fulfill the requirements for the Bachelor of Science and Doctor of Pharmacy degrees in a shorter amount of time, which addresses the second and third barriers mentioned above.

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**Table I. Participating institutions**

Participating institution	Location	Year <sup>a</sup>
College of Notre Dame	Baltimore, MD	2001
Coppin State University	Baltimore, MD	2001
Frostburg State University	Frostburg, MD	2000
Morgan State University	Baltimore, MD	2001
Salisbury State University	Salisbury, MD	1999
Towson University	Towson, MD	1999
University of Maryland-Baltimore County	Catonsville, MD	2001
University of Maryland-Eastern Shore	Prince Anne, MD	2001
University of Maryland-College Park	College Park, MD	2000
Villa Julie College	Towson, MD	2000
Washington College	Chestertown, MD	2000

<sup>a</sup>Year of signing the Memorandum of Understanding.

These programs have been developed without compromising the academic rigor of either degree program. The undergraduate institutions recognize that the first year pharmacy courses have the same academic rigor associated with upper level science courses in the fourth year of undergraduate Biology and Chemistry curriculums. Pharmacy courses mimic what would be taught in fourth year required courses and discipline-focused electives. The undergraduate institutions have been encouraged by their accrediting bodies to develop these dual degree programs. The state's Higher Education Commission and the University System of Maryland also encourage these types of interprofessional programs.

The School of Pharmacy has not adjusted its curriculum or its admissions process to accommodate these programs. Applicants who elect this option are evaluated in the same manner as other applicants. The school has attempted to communicate as clearly as possible to participants in 3:4 programs that they must meet the same admission standards as other students. To do so would be unfair to applicants from other institutions that do not have 3:4 programs.

Table I lists the 11 participating institutions that have partnered with the School of Pharmacy during the past two years. Eight of these institutions are public and three are private institutions. Academic departments at these institutions typically include chemistry, biochemistry or biology.

### PROGRAM BENEFITS

Although students are not given preferential treatment during the admissions process, they do benefit indirectly by participating in the 3:4 programs. They learn more about pharmacy from their prepharmacy faculty and academic advisors. In addition, the School of Pharmacy faculty and recruitment staffs keep in contact with them on a more regular basis during their three years of undergraduate education. Participating students tend to visit the school more frequently. They are more knowledgeable about the school and the profession, and the school knows them better compared to other applicants.

The School of Pharmacy also benefits from these programs. First, the school is in closer contact with prospective pharmacy students. Second, the prepharmacy student body is more informed due to increased interaction between the two institutions. Third, stronger relationships exist with academic advisors and prepharmacy faculty at the participating institutions. School of Pharmacy recruitment staff visit partnering institutions more frequently and school faculty communicate directly with undergraduate faculty who are responsible for the

basic science prerequisites. In some circumstances, pharmacy faculty have even been asked to critique the rigor of the undergraduate Biology and Chemistry courses that serve as building blocks to professional education. This process has enhanced school recruitment efforts since basic science faculty are more aware of the pharmacy profession and Maryland's PharmD program. Thus, they are encouraging more students to pursue pharmacy as a career.

The 3:4 programs benefit participating institutions as well. Most of the undergraduate institutions use the existence of these programs as recruitment strategies to attract prospective students who may be interested in pharmacy. These programs also strengthen institutional matriculation data. For example, if students leave the university in the third year without receiving a degree, they are not counted as graduates and may appear on paper as "academic failures" in matriculation terms. They entered the institution, but did not graduate. However, under the 3:4 programs, institutions are able to count these students as graduates which is important in these days of increased accountability.

The number of students who may benefit from these programs is significant. For example, about 61 percent of students in Maryland's PharmD program have BS degrees, while 21 percent have three years and 14 percent have two years of college. About one-half of the BS students enter pharmacy school directly from other institutions, while the other half return to school from the work force and have been away from higher education for a period of time. This means that about 30 percent (1/2 of 61 percent) of admitted students received their BS degrees just prior to entering the school. It could be argue that many of these BS graduates could have benefited from the 3:4 programs if the opportunity had been available to them. They could have been able to take the appropriate prerequisites and to leave after three years of college. On the national scale, 27.2 percent of the applicant pool for PharmD programs (according to the latest AACP statistics) held BS degrees and another 27.0 percent received three or more years of college without receiving a degree(3). Thus, the number of students benefiting from this educational approach could be quite large if 3:4 programs were established at other schools and colleges of pharmacy.

### PROGRAM IMPLEMENTATION

The school used the following steps to develop and implement the various 3:4 programs. The first step was to gain the support of the academic administrators at the departmental level, since they would be responsible for administering the program and for identifying potential students. At some institutions, the authors discussed the program with department chairs or designated academic administrators within the department. At institutions where more than one department (for example, chemistry and biology) were interested in the program, the authors secured permission at the Provost or Vice-President's level.

The school talked with students within the department to gather information about their perceptions of the value of these programs and how to communicate effectively with students at that institution. The authors also spoke with departmental faculty to seek their advice and to gain their support for the program. In order to answer possible concerns about academic rigor of first year pharmacy courses, the pharmacy faculty shared course descriptions and discussed auricular issues with departmental representatives. At some institutions, pharmacy faculty and staff appeared before departmental curriculum

committees or other groups of faculty. It was interesting to note that this process took longer at some institutions than others based on the characteristics and relationships within the various academic units. However, it became obvious that the school needed to spend time nurturing the support of faculty, administrators and students in order to implement the programs effectively. These programs have developed into definite partnering relationships where effort is needed from both parties and both share the resulting benefits.

Once departmental approval was secured, the authors assisted the departments in seeking approval through their institutional approval processes. At some universities, the department chair simply recommended approval to the president. Other institutions required the approval of university-wide curriculum committees. In most situations, school representatives did not appear before these groups since departmental faculty served as advocates for the program. Once again, this exposure at the university level was advantageous for the school and the profession as additional members of the university community learned more about the practice of pharmacy.

The final step was drafting a Memorandum of Understanding (MOU) between the participating institutions and the School of Pharmacy (see Appendix). After being reviewed by university counsel, these documents were eventually signed by the deans and/or presidents of the respective schools and/or universities. Once these MOUs were signed, the school expanded its communication with faculty, academic counselors, and students within the departments and universities. Most departments developed recruitment materials with assistance from school staff. Participating universities included descriptions of the program in their catalogs and general recruitment materials. Some institutions promoted the program on their internet websites. School of Pharmacy faculty and recruitment staff have been invited to address entering and returning students at the participating institutions to promote the program.

One challenge in maintaining these programs is that the school must stay in close contact with participating institutions since the faculty, students, and academic counselors involved with these programs tend to "turn over" throughout the year. Thus, the school is constantly establishing new relationships within the participating institutions.

## CONCLUSION

The school's experience with this program has been very encouraging. The school has admitted at least one student from the 3:4 programs that have been in place for two years or longer. In addition, several students are in the "pipeline" and are taking prerequisite courses at participating institutions.

These programs have enhanced recruitment since more faculty, academic counselors and students within the participating universities know more about pharmacy as a profession and about the school. Recent school recruitment strategies (3:4 programs being one of them) have been successful in increasing in the number of applicants to the Doctor of Pharmacy program. The applicant pool for the Fall of 2001 (424) was 22 percent larger than the pool for the Fall of 1999 (348). The authors plan to track enrollment statistics to assess the long-term impact of these programs. It is anticipated that through 3:4 programs the school will continue to attract additional well-qualified students into its professional program.

It could be argued that 3:4 programs do not really enhance overall recruitment significantly, they just bring students in a year earlier than usual. However, the opportunities associated

with these programs are worth the time and effort. These efforts have the potential to expose more faculty and students to pharmacy and thus, will enhance student recruitment. The school has established stronger relationships with prepharmacy institutions and works closer with prepharmacy faculty and administrators in this joint educational effort. Having the opportunity to interact more frequently with prepharmacy students will reap benefits in the future.

Some critics may argue that by stressing the existence of the 3:4 programs the school is really adding another year to a student's educational experience. Students should be able to complete the prepharmacy requirements in two, rather than three years. The authors considered the question: Are we doing a disservice to students by promoting a three-year educational program? However, in our recruitment material we stress the fact that students can enter after completing a two-year, 63-hour prepharmacy program. If students are ready after two years, we will definitely welcome them into the school. However, each year a smaller percentage of applicants are actually entering the pharmacy program after two years of college. Many students need three or four years to decide what career to pursue and to prepare for professional education.

In summary, establishing 3:4 programs is a relatively efficient way to recruit well-qualified students without impacting on the academic rigor of the Doctor of Pharmacy program. It is impossible to predict exactly how many students will benefit directly from these programs. But the indirect benefits to potential students, their undergraduate institutions, and the schools and colleges of pharmacy warrant continued expansion of these dual degree programs.

## References

- (1) American Association of Colleges of Pharmacy, Profile of Pharmacy Students, 1997-98, Alexandria VA (1999).
- (2) American Association of Colleges of Pharmacy, Profile of Pharmacy Students, 1998-1999 Alexandria VA (2000).
- (3) American Association of Colleges of Pharmacy, Profile of Pharmacy Students, Alexandria VA (2001) p. 3.

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## APPENDIX. MEMORANDUM OF UNDERSTANDING

### Salisbury State University/University of Maryland Dual Bachelor of Science - Doctor of Pharmacy Program

The University of Maryland School of Pharmacy and Salisbury State University hereby enter into an agreement to cooperate in providing a dual-degree undergraduate-professional program of education leading to the Doctor of Pharmacy degree. This curriculum consists of successful completion of a minimum of ninety (90) undergraduate semester hours at Salisbury State University and four (4) years of pharmacy education at the University of Maryland. Under this program, Salisbury State University would award the Bachelor of Science degree to students who 1) complete at least 90 semester hours at SSU; 2) are admitted to the School of Pharmacy; and 3) successfully complete the first year courses in the Doctor of Pharmacy program. The School of Pharmacy would award the Doctor of Pharmacy degree after students successfully completed the four-year PharmD program. This dual degree program will benefit students in several ways. First, students who complete at least 90 hours at SSU and are admitted into the School of Pharmacy will now have the opportunity to earn a BS degree. In addition, the increased interaction between institutions will lead to a more informed pre-pharmacy student body. The program will be advantageous to both institutions' recruitment efforts. Salisbury State University can attract additional prospective students who are interested in pharmacy. The School of Pharmacy will benefit by hav

ing additional students who are proficient in science within SSU's pre-pharmacy program.

Salisbury State University agrees to:

1. Recruit students to participate in the School of Pharmacy degree program.
2. Screen and recommend qualified candidates for interview and possible admission to the University of Maryland School of Pharmacy through the admissions program.
3. Award the baccalaureate degree to those participants who have completed successfully one (1) year of basic science education in the University of Maryland School of Pharmacy Doctor of Pharmacy program.

The University of Maryland School of Pharmacy agrees to:

1. Interview applicants from Salisbury State University who have met the established requirements and standards (*e.g.*, grade point averages in prescribed courses and standardized test scores, etc.) for consideration into admission.
2. Grant the degree of Doctor of Pharmacy to participants who are admitted through the school's admissions process and who complete the curriculum.

In addition, the undersigned parties agree:

1. Students eligible to seek admission to the School of Pharmacy as part of the 3:4 Program may apply for admission to the school

with the class entering the Fall 2000.

2. The 3:4 Program will be re-evaluated in the semester following the first student having completed the Program. Subsequent re-evaluations will occur every five years.
3. If any major changes affecting the 3:4 Program are to be made by one institution, then it must notify the other institution as soon as possible. Changes are considered "minor" if they meet all the criteria: 1)they are within the spirit of the program; 2)they do not prevent 3:4 students from meeting the prerequisites for entrance into the school; and 3)they do not prevent students from meeting the requirements for graduation from Salisbury State.

This agreement may be terminated by either institution following a one-year written notice. Students accepted into the University of Maryland School of Pharmacy prior to the termination notice date will complete the program as defined in this agreement.

This agreement is signed by:

_____ President University of Maryland, Baltimore	_____ Date
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_____ President Salisbury State University	_____ Date
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