

## Student Pharmacist Medication Adherence Skill Development: A Resident-Driven Initiative

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Studies have been conducted in search of an “easy fix” to improve medication adherence and have utilized various interventions such as education, alarms, “smart” prescription bottles, pillboxes, and calendars; however, no method successfully improves medication adherence for all patient populations.<sup>1-4</sup> There are many patient-specific factors and barriers associated with non-adherence and a one-size fits all solution does not exist.<sup>3</sup> Forty years ago, Sackett and colleagues evaluated adherence in patients with hypertension and noted “complex, multicomponent, behaviorally-oriented interventions [were] needed to bring about substantial change.”<sup>5</sup> Decades later, health professionals continue searching for the most effective way to implement these interventions in a real-world setting.<sup>5</sup> Motivational interviewing (MI), a counseling style which elicits behavior change by helping patients explore and resolve ambivalence, has been studied as a potential foundational intervention to improve medication adherence by providing strategies for professionals to assist patients in belief and behavior changes.<sup>6,7</sup> Pharmacists, as medication experts with direct access to patients in a variety of care settings, are uniquely positioned to leverage MI strategies in order to address nonadherence.<sup>8</sup>

In 2014, the Pharmacy Society of Wisconsin (PSW) Competence Development Collaborative (CDC) was created to identify essential skills pharmacists should possess for clinical practice. Based on results from a needs assessment survey, the CDC was rebranded to the PSW Adherence Competence Collaborative (PACC).<sup>9</sup> PACC is a resident-driven collaborative with a mission that pharmacists will improve health outcomes by maximizing medication

### Abstract

**Objectives:** The goal of the Pharmacy Society of Wisconsin Adherence Competence Collaborative (PACC) was to offer live toolkit training to provide student pharmacists with the knowledge and skills necessary to help patients overcome barriers to medication adherence. The objective of this evaluation was to determine the change in pharmacy student confidence to use motivational interviewing techniques following an adherence workshop.

**Methods:** The PACC workgroup collaborated with the University of Wisconsin-Madison School of Pharmacy and the Concordia University Wisconsin School of Pharmacy to establish settings within both schools to present the adherence toolkit training to students. This was conducted via a one-hour training session during optional student organization meetings. Student confidence related to motivational interviewing was measured pre and post-training on a 10-point scale with 1 being not at all confident and 10 being very confident.

**Results:** A total of 20 students participated in the training. On average, confidence scores increased in every category at both schools following adherence toolkit training. Average confidence scores on the pre-survey ranged from 4.09-7.78. Average confidence scores after the workshop ranged from 5.91-8.56.

**Conclusions:** Adherence training within the schools of pharmacy resulted in improved confidence scores and provided an opportunity for students to further learn and develop their skills specific to patient adherence discussions. The change in confidence scores for each of the questions demonstrated consistent improvement.

adherence. PACC recognizes multifaceted, behavior-changing interventions are needed to improve medication adherence. PACC’s vision is for Wisconsin to have the most adherent patients to their medications regimens in the nation. To do this, Wisconsin pharmacy residents developed a toolkit, supplemental resources, and live training to provide practicing and student pharmacists with the knowledge and skills necessary to help patients overcome barriers to medication adherence.

### PSW Adherence Toolkit

The PSW Adherence Toolkit is a clinical pocket resource which serves as the framework for all PACC initiatives and is used by pharmacists to initiate conversations about adherence, identify patients with adherence barriers, recognize patient-specific barriers, and develop solutions to these barriers. This toolkit was originally created in 2011 with funding via a grant from the National Alliance of State Pharmacy Associations.<sup>10</sup> The funding

was utilized to support a small adherence pilot of the Wisconsin Pharmacy Quality Collaborative (WPQC) pharmacies and promoted its use as providing comprehensive medication review services through WPQC. The toolkit was revised in 2016 to include additional information on how to incorporate MI into adherence-focused comprehensive medication reviews. The new version of the toolkit was introduced at the 2016 PSW Annual Meeting and Educational Conference. The toolkit is structured around two novel mnemonics that were created based upon the foundation of traditional MI. The first mnemonic, MOTIVATES was inspired by MI techniques while the second, SMURF was designed as a framework to remember the multifactorial nature of adherence barriers.<sup>9</sup> Together, these were developed to provide pharmacists with easy-to-recall tools that encompass the essential elements of a medication adherence counseling encounter.

First, the MOTIVATES mnemonic addresses the spirit of an adherence encounter. It reminds the user that an effective pharmacist MOTIVATES: **M**aximizes rapport, **O**pens the discussion, **T**akes out bias, **I**nvolves the patient, displays a **V**ested interest, engages in **A**ctive listening, takes time to build **T**rust, evokes **E**nthusiasm, and **S**hows empathy.<sup>9</sup> This system guides the pharmacist in initiating and sustaining conversations surrounding adherence. Secondly, the SMURF mnemonic summarizes the five main barriers to medication adherence: **S**ystem, **M**otivation, **U**nderstanding, **R**ecall, and **F**inancial barriers.<sup>9</sup> These mnemonics should be used to guide open-ended questions and elicit the patient's hesitations and motivations surrounding medication use, as well as to identify potential solutions for adherence barriers. The toolkit includes example statements and questions for pharmacist use during adherence encounters, categorized by each component of the SMURF mnemonic.

From 2015-2017, the PSW Adherence Toolkit was used to train over 100 pharmacists to have effective medication adherence encounters. Training sessions involved taking a pre-training survey to gauge current comfort levels in applying MI techniques, listening to a didactic

presentation on the toolkit and the importance of medication adherence, practicing adherence encounters through a deliberate practice workshop using hired standardized patients, and a post-training survey.<sup>9</sup> For the 2017-2018 residency year, PACC sought to train students in a similar manner. It is PACC's hope that early exposure to the toolkit augments students' ability to engage in meaningful patient conversations earlier in their careers. While this project was not designed to measure this specifically, it was utilized as a pilot in preparation for future projects. The objective of this evaluation was to

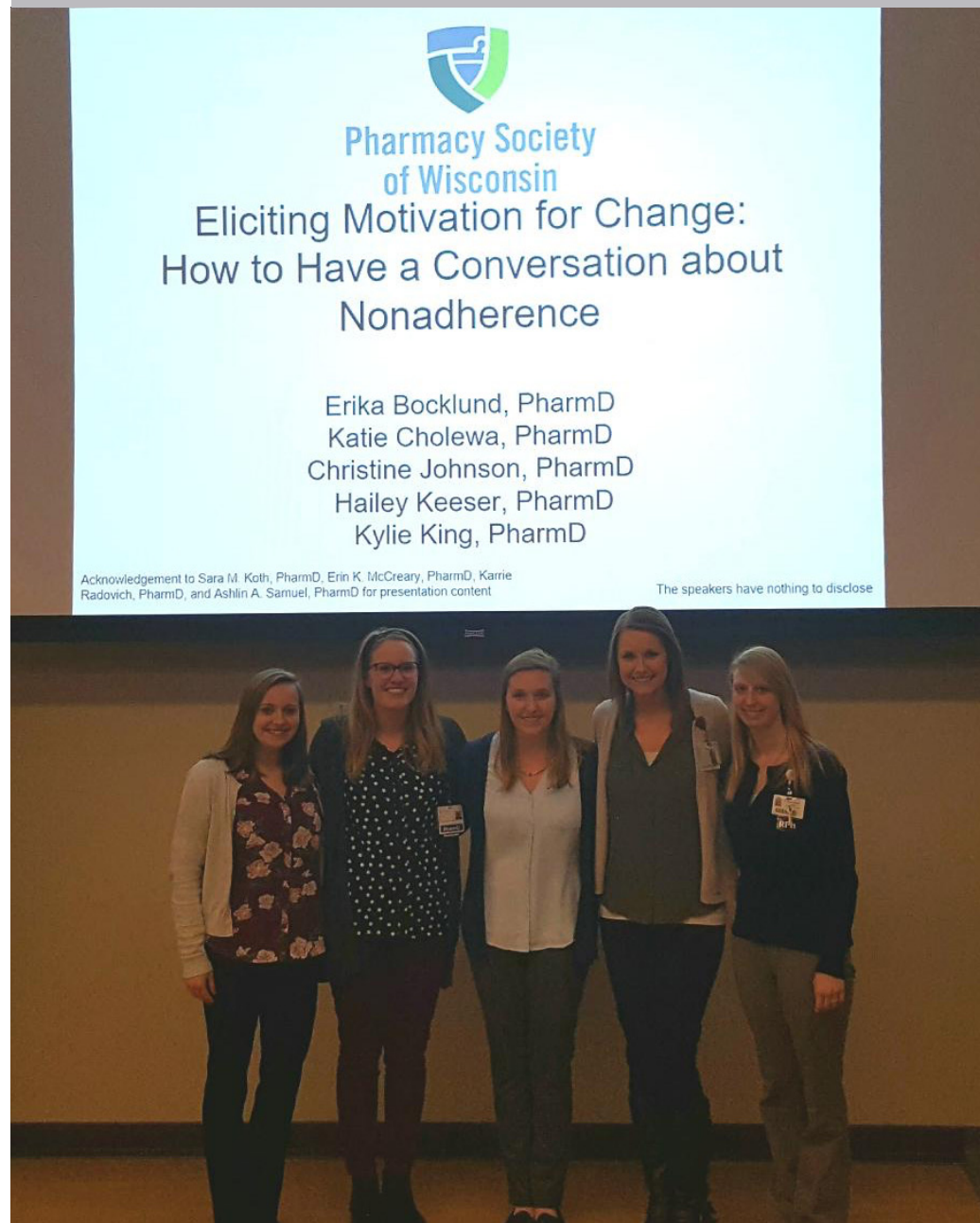
determine the change in pharmacy student confidence to use MI techniques following an adherence workshop.

## Methods

### *University of Wisconsin-Madison School of Pharmacy*

The University of Wisconsin-Madison School of Pharmacy (UWSOP) is a four-year PharmD program consisting of three years of didactic coursework emphasizing the foundation of pharmacotherapy with concomitant application in a pharmacy skills lab. In the first year, students gain exposure to comprehensive medication

*Below: The team of residents presenting/facilitating for the CUSOP workshop*



reviews by pairing with senior citizen members of the community. They also complete volunteer hours providing health screenings and educational information to the community under the supervision of a pharmacist preceptor. Students complete Introductory Pharmacy Practice Experiences (IPPEs) in hospital, community, and elective rotation sites during the first three years. The final year is composed solely of Advanced Pharmacy Practice Experiences (APPEs) in a variety of areas including inpatient, community, administration, ambulatory care, and others.

PACC members collaborated with the UWSOP student chapter of PSW, the Wisconsin Society of Pharmacy Students (WSPS), to host an adherence workshop. All members of WSPS, including first through fourth year students, were invited to attend the optional adherence training. This training was hosted during evening hours and no class credit was awarded for attending.

### **Concordia University Wisconsin School of Pharmacy**

Concordia University Wisconsin School of Pharmacy (CUWSOP) was established in 2010. The school graduated its first class and received ACPE accreditation in May 2014. Pharmacy students participate in IPPEs throughout the first three years of pharmacy school. During the first and second years of the curriculum, students spend one week in a community pharmacy and one week in a hospital pharmacy each semester. In the third year, students may elect to take an optional longitudinal IPPE throughout the semester in which they spend one day per week at an experiential rotation site. The fourth year consists entirely of APPE rotations. CUWSOP students have an Applied Patient Care (APC) lecture and lab every semester throughout the first three years of the curriculum.

PACC members partnered with the Concordia Student Pharmacist Association (CSPA) to plan an adherence workshop for students. The CSPA oversees the student chapters of all pharmacy organizations at CUWSOP, thus including all pharmacy students.

### **Student Adherence Training Description**

One one-hour workshop was held at both CUSOP and UWSOP. The adherence training began by having each student answer a pre-training survey which focused on confidence scores related to MI skills. Following the survey, a presentation was given that involved core fundamentals from the PACC Adherence Toolkit with guidance on utilizing SMURF and MOTIVATES. After the presentation, students were divided into small groups with a resident facilitator to act out and discuss patient cases. Three cases were designed for this training based upon the PACC toolkit based upon real patient cases that residents have experienced during residency. The cases were designed to be interactive and highlight financial, understanding, motivation, and recall barriers discussed in the toolkit training to allow participants practice resolving the barriers using MI. For the cases, the trained resident served as the patient while the students functioned as the pharmacist. This allowed students to practice their MI skills while seeking advice on how to handle difficult scenarios. Each case was given 8 minutes to enact and discussion. The small group cases were followed by a large group debrief and completion of the post-training survey.

Confidence was measured on a validated 1-10 scale, with 1 being “not at all” and 10 being “very confident.” For each participant, pre- and post-confidence scores were reported on the same questionnaire, which allowed for assessment of confidence change within individual participant. Questions can be found in Table 1. IRB approval was granted via quality assurance project exemption.

### **Results**

A total of 20 students attended the two workshops, 11 students from UWSOP and 9 students from CUWSOP. On average, confidence scores increased in every category following adherence toolkit training (Table 1). Confidence scores on the pre-survey ranged from 4.09-7.78. Average confidence scores after the workshop ranged from 5.91-8.56. The smallest increase in confidence was question 4, which asked participants to rate their ability to demonstrate sensitivity and

openness to a patient’s issues. This category had the highest overall average confidence score on the pre-survey of 7.29, and it was only increased to 7.86 after the workshop. Notably, this assessment question is not specific to medication adherence. The question with the greatest change in confidence was question 1 which focused on the structure of a patient counseling session to approach the topic of non-adherence. This question had an average confidence improvement of 2.31.

### **Discussion**

From the results, adherence training within the schools of pharmacy demonstrated improvement in confidence scores and provided an opportunity for students to further learn and develop their skills specific to patient adherence discussions. The change in confidence scores for each of the questions demonstrated perceived improvement by the student in the content provided. One aspect that became apparent during training by the change in confidence scores on the survey and via discussion with the resident facilitators, was that while students recognized the concern associated with adherence and the importance of MI, they lacked the confidence and experience to use these skills in a patient interaction. While the training was not designed to take a novice to an expert in 1-hour session, it was designed to allow students and pharmacists to refresh, build upon and practice the skills that they already have. The training allowed students to build upon their foundational knowledge by providing easy-to-remember mnemonics, an opportunity for deliberate practice of counseling skills, and a nurturing environment to practice multicomponent behavior interventions.

Adherence training is essential because between 10-60% of patients report non-adherence with their medications, which directly impacts their quality of life and management of chronic conditions.<sup>2-4,9,11-16</sup> As pharmacists who work directly with medications and patients daily, it is appropriate for us to take ownership of discussing adherence with patients and striving to collaborate with patients. As a profession, we should see this as an opportunity to expand on current adherence practices already in place. This

**TABLE 1. Survey Question and Confidence Change**

	<i>Question (Rate of confidence in ability to do the following:)</i>	<i>Pre-Test Average</i>	<i>Post-Test Average</i>	<i>Change in Confidence</i>
1	Structure a patient counseling session to approach the topic of non-adherence	4.88	7.19	2.31
2	Invite a patient to talk about a behavior change	4.87	6.68	1.81
3	Elicit a patient's understanding of their illness or treatment	5.97	7.34	1.37
4	Demonstrate sensitivity and openness to a patient's issues	7.29	7.86	0.57
5	Ask thought provoking open-ended questions during a patient interaction	5.84	7.42	1.59
6	Differentiate between expressing empathy and sympathy	6.14	7.46	1.32
7	Encourage a patient to talk about and explore his/her own ideas for change	5.17	6.89	1.72
8	Elicit patient's motivators and barriers for behavioral change	5.19	7.27	2.08
9	Engage a patient on the barriers as to why they are non-adherent	5.25	7.39	2.15
10	Utilize the empathetic statements and reflect a patient's emotions during an interview	6.56	7.67	1.56
11	Help patients identify their internal motivation and willingness to change	4.91	6.46	1.55
12	Help a patient develop strategy or plan for implementing change	5.57	7.04	1.47
13	Provide encouragement and praise for self-efficacy behaviors	6.93	8.10	1.16
14	Maintain a strong belief in competence despite patient reluctance to change	5.33	6.70	1.36
15	Prioritize and address multiple patient non-adherence issues that are occurring at the same time	5.41	6.65	1.24
16	Avoid argumentation when patients show resistance to change	6.61	8.17	1.56
17	Get a patient to visualize how their life may prove after change	5.15	6.34	1.19

*Scale: 1 = not at all confident; 10 = very confident*

toolkit provides pharmacists with the knowledge and resources to make this possibility a reality which this pilot focused on providing students with additional opportunities to work upon these skills.

There are several limitations of the results from the training sessions. First, the original adherence toolkit training for pharmacists was designed to be 3-hours in length. Due to time constraints with the student organizations, this training was condensed to a 1-hour workshop. This shortened the initial presentation of the toolkit material and decreased the number of practice cases utilized. Another limitation is the subjective nature of the survey. When an individual participates

in a training session, there may be an innate bias towards the belief that one should, and will, learn during the training. Therefore, when one completes subjective self-graded surveys, the student may have the potential to over identify changes in confidence. There was also an increase in confidence in certain aspects of the survey that was not specifically addressed during the presentation and cases that could argue against the validity of the survey. An additional limitation is that this was a volunteer experience in which students self-selected to attend, leading to potential bias. A final limitation is the small sample size of participants between both schools. This may lead to misinterpreted and less generalizable study results.

From the results of this workshop, it is apparent that there may be some benefit in expanding this pilot into a formal integration into the pharmacy schools' curriculum or a more permanent placement within student organizations at each of the institutions. PACC has set this as a core initiative for the following year with the goal to further incorporate adherence toolkit training into the curriculum of Wisconsin schools of pharmacy.

### Conclusion

This 1-hour training provided pharmacy students with additional classroom and interactive learning to further build upon skills being taught in their curriculum. While the pilot was conducted on





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volunteers with a very small sample size, it did show an improvement in confidence scores when comparing pre and post workshop and opens the way for potential future integration into pharmacy schools' curriculum or student organizations.

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