

**Assessing Medical Student Communication:
The Rush Interpersonal and Communication Skills Rating Form**

BY

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THESIS

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LIST OF ABBREVIATIONS

CSA	Clinical Skills Assessment
M1	Medical Student, Year 1
M2	Medical Student, Year 2
M3	Medical Student, Year 3
OSCE	Objective Structured Clinical Examination
RICS	Rush Interpersonal and Communication Skills
RMC	Rush Medical College
SP	Standardized (Simulated) Patient
Step 2 CS	Step 2 Clinical Skills
USMLE	United States Medical Licensing Examination

SUMMARY

The RICS is a behaviorally anchored rating scale tool designed to capture a wide range of communication behaviors demonstrated by novice through advanced learners and to guide development of skills in domains consistent with board certification examinations and effective clinical practice. We conducted an evaluation of evidence for validity of the RICS using Messick's Unified Theory of Validity. Specifically, we examined evidence for content validity, response process, internal structure, relationship to other variables, and consequences. In addition, using regression analyses, we also examined the relationship of preclerkship communication skills to clerkship communication skills. Using Messick's framework, we found reasonable evidence for content validity, response process, internal structure, relationship to other variables, and consequences of failure. In a sample of 127 students who had completed a total of 11 assessments, performance at the start of the M1 year was predictive of performance at the end of the M2 year, but only performance at the end of M2 year was predictive of performance at the start of M3 year. The RICS can be an effective tool for repeated assessment of communication skills in medical students as they progress from novice communicators to advanced communicators and in the development of remediation plans for struggling learners.

I. INTRODUCTION

A. Background

Educational programs designed to teach patient-centered communication skills to medical students are generally effective at producing these behaviors immediately following the training. For example, in a cross-sectional study, participation in professional development courses related to communication skills were associated with higher ratings of empathy on the Jefferson Scale (Hegazi and Wilson, 2003). Longitudinally, after participation in a month-long elective in palliative care, which included two hours in communication skills training, fourth-year medical students demonstrated increased use of open-ended questions in patient encounters, especially in “breaking bad news” (Sanchez-Reilly, et al., 2007). Despite the growing evidence that interventions and training programs to teach patient-centered communication are effective in developing effective communication skills in the learners, there is limited evidence of the lasting effects of these interventions. On the contrary, there is a growing literature that suggests that empathy declines among medical students, especially in the transition from the preclerkship to clerkship transition (Hojat, et al., 2004). However, the evidence for this decline in medical student communication skills and empathy is largely based on cross-sectional studies. Studies that do use a longitudinal design assess attitudinal empathy based on self-reported measures (i.e., self-report scales), and to our knowledge, no studies have been done to assess empathic communication skills over time using standardized patient encounters.

B. Tools to Assess Communication

A myriad of tools exists to assess patient-centered and empathic communication skills, with different conceptual foci, response formats, target raters, and target examinees. Some of the most widely used tools are those derived from the Kalamazoo consensus, specifically the Essential Elements Communication Checklist (KEECC; Makoul, 2001), the KEECC-Adapted (Calhoun, et al., 2009), and the Gap-Kalamazoo Communication Skills Assessment Form (Peterson, et al., 2014). Although these tools

have excellent evidence for validity in advanced learners such as residents and fellows, there is limited evidence for their use with novice learners. In contrast, the SEGUE (Makoul, 2001) is a reliable tool for assessing communication skills in medical students, but the tool is lengthy, which can be difficult when assessing large cohorts of students, especially via structured simulation encounters. Similarly, the Liverpool Brief Assessment System (Humphris and Kaney, 2001) is used for assessment of medical students, but ratings must be completed by expert clinicians, which can also be difficult when assessing large cohorts of students.

C. **Purpose of the Study**

In order to assess our novice learners as they progressed to advanced learners, we sought to develop an assessment tool that could be used for the reliable and valid assessment of communication skills among preclerkship and clerkship medical students, with the flexibility to assess students as their communication skills may change throughout, and in relation to, the curriculum. We also wanted to create a behaviorally anchored tool that could be used to help guide remediation for struggling learners. Similarly, as our communication skills curriculum is designed to prepare students for both board certification and clinical practice, we sought to develop a tool mapped to the domains on the Step 2 Clinical Skills (NBME, 2015) examination and to those domains of patient-centered care that impact patient outcomes. Thus, we developed the Rush Interpersonal and Communication Skills Rating Scale (RICS) to capture a wide range of communication behaviors demonstrated by novice through advanced learners.

II. METHODS

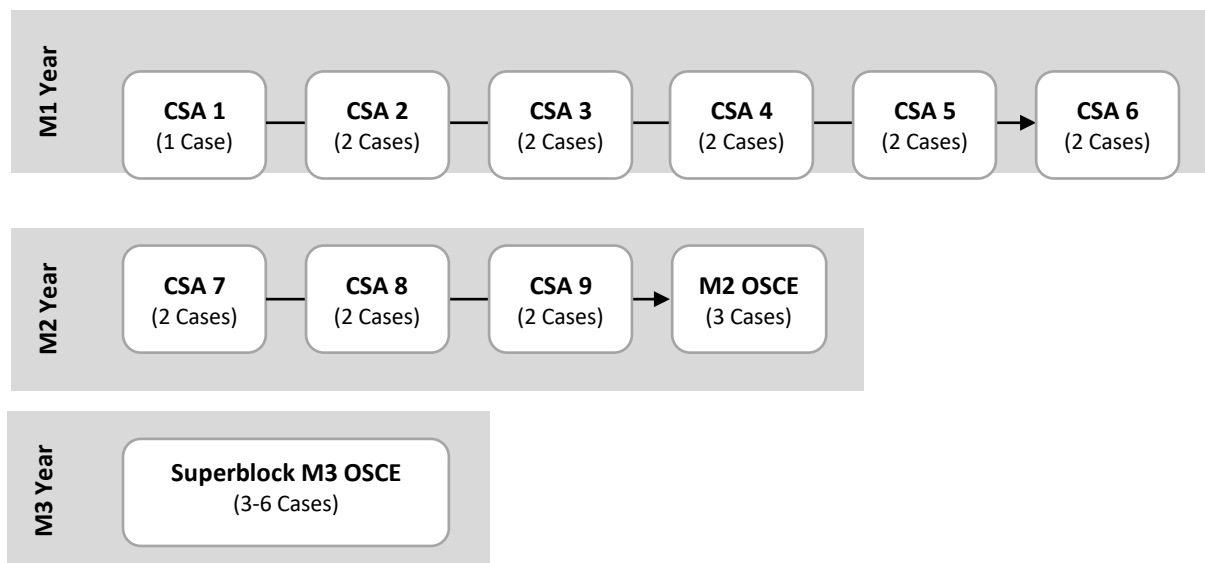
A. Scale Development

The Rush Interpersonal and Communication Skills (RICS) rating form (Appendix A) is a behaviorally anchored rating scale used to assess a range of communication skills, including empathic communication. The RICS was developed by an interdisciplinary team of experts at Rush Medical College (RMC), including clinical psychologists, industrial/organizational psychologists, physicians, and standardized patients (SPs). The team reviewed the literature on patient-centered communication, other tools for assessment of communication skills, and the content outline for the Step 2 Clinical Skills (CS) examination administered by the United States Medical Licensing Examination (USMLE). This review resulted in the identification of five domains which map directly to the Step 2 CS domains: (1) gathering information, (2) fostering the relationship, (3) supporting emotions, (4) providing information, and (5) shared decision-making. We also added additional domains which map to literature on patient-centered communication: (5) empathy for distress and (6) using sensitive language^{10,11}. Finally, we added two items to assess overall communication skills. Once the domains were identified, items from the previously used internal communication checklist were used to populate the behavioral anchors for each domain. Anchors were written such that the lowest level of performance is representative of unacceptable behavior, and the remaining levels of performance are representative of minimally acceptable to exceptional behavior. These anchors were presented to a group of standardized patients and simulation trainers for additional revisions. The final rating scale resulted in seven items with behavioral anchors for five levels of performance and one Likert-type item on probability of return. A student's score on the RICS is derived from the sum of these eight items. The minimum passing level is derived normatively (i.e., 1.5 SD below the mean). Additionally, students must perform at the second level of performance or better on all domains. The RICS also contains six checklist items (e.g., introducing oneself, summarizing the encounter) which are formative only and do not contribute to a learner's scores on the RICS.

B. Scale Implementation

We utilize the RICS to assess communication skills throughout the preclerkship and clerkship curriculum in a variety of formative and summative events (Figure 1). The process of and resources for implementation at each event are similar; however, the RICS is designed to be used in a variety of settings by a range of raters. For the purposes of evaluation of the reliability and validity of the tool, we collected data from one representative event which occurs at the transition point from the preclerkship to clerkship period. At the end of the M2 year, students complete a three-station clinical performance assessment of skills learned throughout preclerkship, mastery of which is necessary for success in the clerkship period, referred to as the Clerkship Entrance Objective Structured Clinical Exam (OSCE). In the Clerkship Entrance OSCE, students conduct encounters with three SPs, each with a distinct chief complaint and targeted communication skills challenge (i.e., gathering a complete history, responding to intense distress, and promoting adherence/motivational interviewing).

Figure 1. Longitudinal Assessment using the RCIS in the RMC Curriculum



Implementation of the RICS requires: (1) writing of cases that allow for student demonstration of key communication skills, (2) training of raters in using the tool, (3) completion of the tool either via paper and pencil or electronically, (4) provision of feedback on performance to learners, and (5) provision of feedback to raters. First, cases at RMC are co-written by a physician with expertise in clinical reasoning education and a clinical psychologist with expertise in communication skills curriculum. Each case includes specific directions to the SPs designed to elicit demonstration of key communication skills by the learners. For example, cases include emotional language such as “This problem has been so embarrassing for me to talk about” designed to prompt learners to use reassuring and sensitive language. Second, for any events that assess communication skills, SPs are trained on the RICS tool during training for that event. Training sessions, led by our SP trainers, take two hours and include review of case details and review of the supplemental SP guide (Appendix B). During these trainings, trainers review the description of each domain, examples of the behaviors that fall under the domain, and examples of what constitutes each performance level for each domain. The SP trainers also give examples of comments for different ratings for each domain. Third, in our program, SPs complete the RICS electronically in Learning Space© (CAE, 2021), a simulation management platform, which allows for routine quality checks by our SP trainers and allows for students to login and see their ratings of performance. Finally, at the end of an event, SP ratings are reviewed by SP trainers and any outliers in performance are reviewed by the manager of simulation assessment prior to identification of any students who failed to meet assessment standards.

C. **Evaluation of Validity of Scale**

We conducted an evaluation of evidence for validity of the RICS using Messick’s Unified Theory of Validity (Messick, 1989). Specifically, we examined evidence for content validity, response process, internal structure, consequences, and relationship to other variables. For relationship to other variables, we examined correlations between RICS scores and performance on other assessment tools used during

the Clerkship Entrance OSCE, namely assessments of physical examination skills and clinical reasoning/diagnostic skills.

III. RESULTS

A. Study Sample

The sample for analysis of internal structure and relationships to other variables consisted of 145 students who completed the Clerkship Entrance OSCE in February 2019. Demographic information, such as age and gender, are not routinely collected from our learners and was not available for these analyses. Performance on the three Clerkship Entrance OSCE cases was as follows: (1) presenting complaint of insomnia, mean RICS = 3.6, SD = 0.4; (2) presenting complaint of abdominal pain, mean RICS = 3.2, SD = 0.4; and (3) patient presenting for diabetes management, mean RICS = 3.7, SD = 0.6.

The sample for analysis of longitudinal analysis of RICS performance included 127 learners who had completed 10 preclerkship assessments (CSA 1 through CSA 9 and the Clerkship Entrance OSCE (February 2019)) and the first clerkship assessment, the Superblock OSCE (August 2019). Again, demographic information was not available for these analyses. For CSA 1 through CSA 9, overall mean on the RICS, averaged across cases and events, was 3.4 (SD = 0.2). Mean RICS for the Clerkship Entrance OSCE across cases was 3.5 (SD = 0.3). Mean RICS for the Superblock OSCE, averaged across learner groups and cases was 3.6 (SD = 0.3) Data for performance at each assessment is available upon request.

B. Evidence for Validity

1. Content validity

With respect to content validity, we based the RICS items on a thorough literature review of both the medical education literature on the assessment of communication skills and the patient-provider literature on domains of communication and impact of communication on patient outcomes. We also reviewed published documentation from the USMLE regarding domains assessed on the Step 2 CS. In addition, three members of our team (i.e., the director of communication skills, the simulation

assessment manager, and an SP trainer) independently reviewed the RICS items and mapped them to (a) the Kalamazoo Consensus Statement domains, (b) USLME domains, and (c) RMC program objectives (see Table I). The RICS assesses the domains as outlined by the Kalamazoo Consensus, suggesting that the RICS is a comprehensive assessment of key patient-centered communication skills. The RICS also maps well to the NBME domains, suggesting that the RICS may be used as an effective tool in providing formative feedback to learners preparing for this high-stakes examination. In addition, the RICS domains are consistent with two RMC Program Objectives. The first objective, “establish professional therapeutic relationships with patients and families,” is achieved by effective rapport building as assessed by two RICS domains: using appropriate and sensitive language, and supporting emotions and fostering relationships. The second objective, “engage patients and families in developing and implementing treatment plans that reflect their needs and goals,” is achieved by effective information gathering/sharing and decision making, as assessed by RICS domains: gathering information, displaying empathy, providing information, and making decisions.

2. **Response Process**

With respect to response process, we reviewed our methods of rater training and our methods for presenting the tool to students and faculty. SP raters are required to participate in training conducted by the Simulation Manager and SP trainers, as described above. This process appears to yield consistency in use of the tool by SPs; however, we also meet regularly to address any SP concerns in using the tool in an effort to reduce rater drift. We also reviewed our methods for training students and faculty in the interpretation of results. There is considerable consistency in communication skills faculty, as the same group of 12 faculty have been teaching for several years, and these faculty participate in a review of the RICS each year. Students are introduced to the tool at the start of medical school and the tool is reviewed in class debrief sessions, during which faculty review average student performance on each ICS domain, as well as overall performance, following each assessment event. With respect to inter-rater reliability, while any outliers in performance are regularly reviewed by SP trainers, generally with

few corrections needed, systematic data on inter-rater reliability was not available in this dataset, as each case is only scored by one SP.

Table I. DOMAINS OF RICS MAPPED TO ESTABLISHED MODELS OF COMMUNICATION

RICS Domain	NBME Domain	Kalamazoo Domain	Program Objective
Gathering Information (Item 1)	Gathering Information	Open the Discussion, Gather Information	Engaging Patients
Empathy for Distress (Item 2)	Supporting Emotions	Build Relationship, Understand Patient's Perspective	Establishing Relationships, Engaging Patients
Providing Information (Item 3)	Providing Information	Share Information	Engaging Patients
Using Appropriate & Sensitive Language (Item 4)	Foster Relationship, Providing Information	Share Information, Understand Patient's Perspective	Establishing Relationships
Making Decisions (Item 5)	Helping the Patient Make Decisions	Reach Agreement on Problems and Plans	Engaging Patients
Supporting Emotions & Fostering the Relationship (Item 6)	Support Emotions, Fostering the Relationship	Build a Relationship, Understand Patient's Perspective	Establishing Relationships
Overall Communication Skills (Item 7)	Overall Communication & Interpersonal Skills (CIS)	Build a Relationship, Overall Communication Task	
Probability of Return as Patient (Item 8)	Foster Relationship, Support Emotions	Build a Relationship, Understand Patient's Perspective	

3. **Internal structure**

To evaluate internal structure, we first conducted an exploratory factor analysis using performance data for the eight non-checklist items from the RICS. The six checklist items were excluded from analyses, as they do not contribute to overall score on the RICS. Of the three cases, we selected the

case of a patient with insomnia for the first exploratory analyses, as it was determined to be most “prototypical” of cases, as it included history-taking of acute complaint, a focused physical examination, and documentation of the history of present illness and examination. This case also required overall effective communication skills to collect a history in the context of a patient’s larger psychosocial context. Results of the exploratory factor analysis with this case identified one global factor based on review of the scree plot and application of the rule to retain factors with Eigenvalues greater than one. All eight items had factors loadings greater than 0.60 on this factor. Independent exploratory factor analyses with the two remaining Clerkship Entrance OSCE cases also supported a one-factor structure. Individual items within a case were highly correlated (r ranging from 0.20 to 0.69), and average Cronbach’s alpha across items (for three cases) was 0.87, suggesting computation of a global score, defined as the average of items, was appropriate for subsequent analyses. The Cronbach’s alpha across three cases, to roughly estimate generalizability, was 0.40.

4. **Relationship to other variables**

We also examined relationship to other variables, namely identifying strong relationships with variables with similar latent constructs and weak relationships with variables with dissimilar latent constructs. We hypothesized that scores on patient documentation, which relies heavily on history-taking skills, would be significantly positively associated with RICS scores, as both likely share an underlying communication skills component. This hypothesis was not supported; the correlation between RICS ratings of communication skills (averaged across cases) and documentation (averaged across cases) was nonsignificant ($r = .13, p = .16$). Conversely, we hypothesized that the relationship between scores on the standardized patient physical examination checklist and RICS scores would be nonsignificant, as they likely have different underlying constructs. This hypothesis was supported, as the correlation between RICS ratings of communication skills (averaged across cases) and physical examination was also nonsignificant ($r = .02, p = .80$).

5. **Consequences**

Lastly, we examined the consequences of the tool. We use the tool in a variety of settings with a variety of consequences. The RCIS is used in summative events, as in the Clerkship Entrance OSCE as described earlier, but also in formative events called Communication Skills Labs which are used to provide learners with both SP and faculty feedback to develop individual learning plans for communication skills. For summative events, the minimum passing level is norm-based. A score for the communication skills is calculated as the mean of RICS scores across cases; a score that is 1.5 SD below the class mean is constituted a “failure” and learners are then required to participate in enrichment. Typically, 5 to 10 students are identified for enrichment following each event. These students are required to participate in additional individual review of their performance with a faculty member, and the faculty and the learner collaborative develop an individual improvement goal. The learner participates in additional role-play with the faculty member and/or observed additional practice with an SP, as determined appropriate by the faculty member.

Repeated failure to meet the minimum passing level on subsequent events may result in presentation to the student promotions committee for development of a formal remediation plan; however, failures on the CSA and OSCEs are not documented in a student’s transcript. Both enrichment and formal remediation are designed to increase a student’s likelihood for success on the Step 2 CS, and a review of performance in recent student cohorts suggests that students who participate in enrichment following preclerkship and early clerkship events often go on to subsequently perform well on the Step 2 CS. As such consequences were deemed appropriate to the significance and purpose of assessments using the RICS.

C. **Longitudinal Performance Assessed with RICS**

The RICS has been used to assess communication skills in our preclerkship curriculum since 2015. Each year, the full cohort (between 130 – 150 learners) is assessed at each end-of-course clinical skills assessment (CSA) and in the Clerkship Entrance OSCE, for a total of 21 individual RICS ratings

(see Figure 1). Since 2017, the RICS has also been used to assess communication skills in the clerkship curriculum. Our core clerkships are organized into three “superblocks.” Superblock A includes the internal medicine, psychiatry, and neurology; superblock B includes surgery, obstetrics and gynecology, and two-weeks of elective, and superblock C includes pediatrics, primary care, and four-weeks of elective. At the end of each superblock, learners complete an OSCE with three to six cases, resulting in another 12 RICS ratings for each student during their clerkship year. Performance as measured by the RICS is tracked longitudinally for learners to provide individual feedback and develop tailored plans to improve communication skills.

We used this longitudinal data to examine the predictive relationship of early communication skills to later communication skills. For these analyses, we used data collected for the cohort that matriculated in 2017 who received 23 to 26 ratings of communication skills as assessed by the RICS collected at 11 time points – 20 ratings over ten time points in the preclerkship years and three to six additional (depending on the Superblock) ratings at one time point during the clerkship year (see Figure). We ran two sets of similar regression analyses. The first used performance from previous CSAs to predict Clerkship Entrance OSCE performance, and the second used all preclerkship assessments (CSAs and Clerkship Entrance OSCE) to predict the first M3 Superblock OSCE performance.

For each outcome, stepwise multiple regression analyses were used. RICS scores, averaged across cases, for each CSA were entered in a single step, in order of CSA administration. RICS scores were only entered if they explained a significant proportion of the variance in the target OSCE (either Clerkship Entrance or M3 Superblock) performance above and beyond the variance explained by RICS scores from previous CSAs. A model that included RICS scores at CSA 1, CSA 4, and CSA 6 ($F = 15.58$, $p = .00$) explained the most variance in Clerkship Entrance OSCE scores ($R^2 = 0.28$). However, even RICS scores at CSA 1 (Fall M1) significantly predicted Clerkship Entrance OSCE (Spring M2) performance ($F = 28.50$, $p = .00$) and explained 19% of the variance in Clerkship Entrance OSCE scores.

Only Clerkship Entrance OSCE score (Spring M2) was predictive of M3 Superblock OSCE (Summer M3) score ($F = 16.55$ $p = .00$) which explained 13% of the variance in M3 Superblock OSCE score. ($R^2 = 0.28$). Communication skills performance on preclerkship CSAs was not predictive of M3 Superblock OSCE performance.

IV. DISCUSSION

The RICS is a behaviorally anchored rating scale that can be used by SPs and clinician raters to assess communication skills in novice to advanced medical students. Using Messick's framework, we found reasonable evidence for content validity, response process, internal structure, relationship to other variables, and consequences of failure. Clearly delineated processes for item selection and content blueprinting provide evidence for content validity. Standardized training protocols for the SPs, along with a detailed SP training guide, and computerized methods of data collection with multiple quality checks provide compelling evidence for response process. Analyses suggest a single-factor structure for the non-checklist items with reasonable internal consistency among items. Relationship to other variables suggested communication skills were not correlated with history-taking or physical examination skills. Finally, consequences were deemed appropriate to the significance and purpose of assessments using the RICS.

Although there is reasonable evidence for validity of the RICS, and the RICS has used for dozens of patient cases, the RICS has not been utilized for cases that were not written by our curriculum team. To be assessed in a particular domain, learners must have had the opportunity to display effective communication behaviors. If a case is not written to elicit such behaviors, the RICS may not adequately capture performance. This effect of case-specificity has not been examined using the RICS, as the current use of the RICS does not provide sufficient data for such analyses. Specifically, each case has only one rater (the SP) and thus variability due to rater is confounded with variability due to case. In addition, there are few events with more than three cases, and the sample size for these events is small, only a portion of the cohort. Subsequent validity studies should include a balanced design with multiple raters per case and more cases per event. Finally, our hypotheses that performance in history-taking skills and communication skills would be positively correlated was not supported. We had anticipated that students would not be able to elicit needed history information (e.g., onset of symptoms, severity of symptoms) without effective communication skills as measured by the RICS. However, it is likely that student could

still garner these details without using skills such as active listening, empathic reflections, and perspective-taking.

With respect to longitudinal assessment of communication skills, performance as assessed at the start of M1 year was predictive of performance on the Clerkship Entrance OSCE, administered in Spring of the M2 year. Performance assessed at the Clerkship Entrance OSCE was predictive of performance on the M3 Superblock OSCE, administered in the Summer of the M3 year (approximately 6 months after the Clerkship Entrance OSCE). However, the increase in RICS scores over time was small. It is possible that learners' communication skills are improving over time, but this improvement may not be reflected in the RICS scores for two reasons. First, cases likely increase in difficulty from CSA 1 to the M3 Superblock OSCE, as they require students to collect more detailed and complex histories, address sensitive emotions, and engage in more difficult clinical reasoning. Second, SPs may be implicitly applying different standards based on the level of the learner (e.g., expecting better performance in an advanced learner than for a novice learning to achieve the same RICS rating).

These limitations notwithstanding, the RICS can be an effective tool for repeated assessment of communication skills in medical students as they progress from novice communicators to advanced communicators. The descriptions of the behavioral anchors are useful in developing tailored learning plans for struggling learners. For example, a learner who performs poorly in the domain of "empathy for distress" can glean from the RICS that more effective behaviors to display empathy would include asking a patient's perspective on their illness, asking a patient's expectations for treatment, and/or reflecting how symptoms impact a patient emotionally. Our data suggests that use of the tool for both assessment and enrichment can lead to development of deficient skills and subsequent positive performance on high-stakes assessment such as the Step 2 CS.

APPENDICES

Appendix A. Interpersonal & Communication Skills Rating Form (RICS)

Beginning the Encounter: Learner clarity, ease, and confidence in making introductions and initiating discussion.

The learner addressed me respectfully using my last name.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The learner introduced him/herself using first and last name.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The learner described his/her role on the healthcare team.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Item 1: Gathering Information About My Concerns: Learner ability to collect information about my presenting concern, relevant aspects of my personal and medical history, and my perspective on my concern.

1	2	3	4	5
You did not ask about or spent little time on my concerns, missed significant details about my concerns, OR framed questions in a way that did not allow me to tell my story.		You asked about my concern and allowed me adequate time to share my story. You got the essential information. There may have been some missed opportunities to gain a deeper understanding of my concern.		You allowed me to fully share my story in a conversational and comfortable way. You got all of the essential information and all or almost all of the details surrounding my concerns.

Item 2: Empathy for my Distress: Learner ability to recognize my concern and emotion and respond to this emotion in an accurate, compassionate, and genuine manner.

1	2	3	4	5
You never asked about my perspective of my concerns or illness, never asked about my expectations for treatment, OR did not understand how these concerns impact me emotionally or functionally.		You made effort to understand my perspective of my concerns, my expectations for treatment, and how these concerns impact me emotionally or functionally.		You thoroughly explored and demonstrated understanding of my perspective on my concerns including my expectations for treatment and how these concerns impact me emotionally and functionally.

Item 3: Providing Me with Information: Learner ability to share information with me and respond to my questions regarding my concern and possible diagnosis. ☐ Not applicable to this case.

1	2	3	4	5
You did not encourage me to ask questions. You rarely provided me with information about my concern. You did not help me to understand my symptoms or possible diagnosis.		You answered questions but <u>did not</u> check for my understanding. You provided me with an appropriate amount and complexity of information.		You clearly answered my questions. You provided me with clear information about my concern at a level that was easy for me to understand. You checked to be sure I understood.

Item 4: Using Appropriate & Sensitive Language: Learner ability to use medical correct language in a way that was neither too technical nor too simplistic, as well as ability to avoid presenting information in unnecessarily frightening manner. Learner appropriately deferred questions to supervising physician when they could not answer my questions.

1	2	3	4	5
You frequently used medical jargon or frequently made several frightening or alarming comments. You addressed sensitive topics in an abrupt manner, or a manner which expressed judgment.		You occasionally used medical jargon without explaining it in layman's terms. You rarely made unduly frightening comments. You addressed sensitive topics professionally but in a detached manner.		You used medical terms as needed and explained them in a way I could understand without my asking. You explained serious concerns and findings in a clear but compassionate way. You addressed sensitive topics in a way that made me to feel at ease.

Item 5: Making Decisions: Learner ability to provide education about treatment options, solicit my opinion on treatment options, and develop a treatment plan in a collaborative manner. ☐ Not applicable to this case.

1	2	3	4	5
You did not share information on different treatment options. You did not include me in decision-making. You did not assess my willingness to execute the plan.		You presented me with information about different treatment options but <u>did not</u> assess my preference for treatment planning.		You presented me with different treatment options, provided rationale for each, and assessed my treatment preference. You helped me choose an option in collaborative way.

Item 6: Supporting Emotions & Fostering Relationship: Learner ability to connect with me as a person through their eye contact, body language, and interest in me beyond the “facts” of my concern.

1	2	3	4	5
You did not maintain eye contact, or your eye contact was uncomfortable. Your body language was closed or off-putting. You rarely reflected my emotions. I did not feel connected with as a person.		You maintained eye contact. Your body language was open. You reflected my emotions a few times in the encounter. You were pleasant but distant. I did not feel that genuine interest in me as a person was demonstrated.		Your body language and demeanor were warm and inviting. You frequently reflected my emotions. We connected well, and I felt genuine interest in me as a person was demonstrated.

Ending the Encounter: Learner ability to confidently and cohesively summarize the encounter, provided opportunity for patient to ask remaining questions, and provide instructions for next steps.

The learner summarized my reason for visit.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The learner checked for accuracy of their summary.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
The learner provided me with instructions on what do after he/she left the room.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Item 7: Overall Communication Skills: Learner’s overall skills in interpersonal communication.

1	2	3	4	5
You were difficult to talk with, I felt uncomfortable, <u>or</u> the encounter was disorganized or confusing.		You were pleasant to talk with for the encounter, and I rarely felt uncomfortable. Your organization was variable, but I generally understood your line of questioning.		You were easy to talk with. I felt comfortable and respected throughout the encounter. Your organization was excellent such that I felt that we were understanding one another and collaborating throughout the encounter.

Item 8: Probability of Return as a Patient: Based on my overall satisfaction with care, how likely am I to seek this provider’s care again?

1	2	3	4	5
I would not come see you again.		I would come to see you again.		I would come see you again, and I would highly recommend you as a physician to my family and friends.

Appendix B. Interpersonal & Communication Skills Rating Form SP Guide

Beginning the Encounter

Checklist Item	Sample Statements (Things a student might say or do)
The learner addressed me respectfully using my last name.	“Hello, Mr./Ms. Jones?” Do NOT give credit if learner only uses patient’s first name.
The learner introduced him/herself using first and last name.	“My name is Sarah Smith.” Do NOT give credit if learner only uses their first name.
The learner described his/her role on the healthcare team.	“I am a first-year medical student working with Dr. Harper today. She asked me to ask you a few questions first.” Do NOT give credit if learner uses jargon (e.g., M2).

Gathering Information about My Concerns

Rating	Description	Sample Statements (Things a student might say or do)
1	You did not ask about or spent little time on my concerns, missed significant details about my concerns, OR framed questions in a way that did not allow me to tell my story.	-Student begins the encounter with a conclusion based on the chart, “so you’ve been having headaches. Headaches are usually…” -Multiple interruptions as you attempt to describe concern. -Asks almost exclusively yes/no questions.
2		-Asks mostly yes/no questions. -Draws conclusion based on too few details. -Fails to clarify or makes assumptions about unclear aspects of interview.
3	You asked about my concern and allowed me adequate time to share my story. You got the essential information. There may have been some missed opportunities to gain a deeper understanding of my concern.	-Begins with open-ended questions (“Please, tell me about your headaches”) and allows you sufficient time to answer those questions. -Uses clarifying questions (“So, it sounds like you had headaches in college too? Tell me about those.”) to understand matters clearly related to presenting concern. -Appropriately moves from open-ended to specific to yes/no questions as encounter progresses. -May miss or ignore matters that are less central to presenting concern.
4		Performance as described in 2 but does not miss or ignore more peripheral matters.
5	You allowed me to fully share my story in a conversational and comfortable way. You got all of the essential information and all or almost all of the details surrounding my concerns.	-Performance as in 3 and uses a conversational pace and tone throughout the encounter. -Appears genuinely curious about you and your concern.

Empathy for my Distress

Rating	Description	Sample Statements (Things a student might say or do)
1	You never asked about my perspective of my concerns or illness, never asked about my expectations for treatment, OR did not understand how these concerns impact me emotionally or functionally.	-Speaks of your concern in strictly diagnostic terms, "your classic migraines." -Speaks of treatment solely in prescriptive terms, "you can take..." -Gives the overall sense of treating the symptom(s)/disease not the person.
2		-Consideration & discussion of your perspective is haphazard -Treats perspective as separate from actual medical care -Consideration of impact is superficial
3	You made effort to understand my perspective of my concerns, my expectations for treatment, and how these concerns impact me emotionally or functionally.	Asks explicit questions about these matters: "How has this affected you?" "What do you think is going on?" "What would be a good outcome for you?"
4		As in 2, and asks appropriate follow-up questions, "how is this affecting your kids?"
5	You thoroughly explored and demonstrated understanding of my perspective on my concerns including my expectations for treatment and how these concerns impact me emotionally and functionally.	-As in 3 AND the student genuinely considers your perspective and expectations as well as the functional impact of your concerns as the encounter moves forward. In other words, these factors explicitly shape the student's choice of subsequent topics and questions rather than being treated as isolated facts

Providing Me with Information ☐ Not applicable to this case.

Rating	Description	Sample Statements (Things a student might say or do)
1	You did not encourage me to ask questions. You rarely provided me with information about my concern. You did not help me to understand my symptoms or possible diagnosis.	-Simply omits these components -Organizes encounter so that there are no times for these - “You don’t have any questions, do you?” -Uses jargon in describing your concern without providing additional info or opportunity for follow-up
2		-Includes these but with far too little time. -Attempts to clarify or explain are rushed and/or simply rely on additional jargon
3	You answered questions but DID NOT check for my understanding. You provided me with an appropriate amount and complexity of information.	-Provides direct answers to direct questions though answers may lack some necessary detail. Implied questions may go unanswered. -Clear description of their impressions of main problem, “So, you have what we term classic migraines, which means that you have the headaches and aura...not at all uncommon...our recommended treatment...” [End of discussion]. -No reference made to your understanding of information provided.
4		As in 2, and inquiries about your understanding in a close-ended way, “did that make sense?”
5	You clearly answered my questions. You provided me with clear information about my concern at a level that was easy for me to understand. You checked to be sure I understood.	-Provides complete answers to both direct and implied questions. -Explicitly explores your understanding of problem. -The exceptional student may ask you to explain your problem back to them (“teach back”) to assess your understanding

Using Appropriate & Sensitive Language

Rating	Description	Sample Statements (Things a student might say or do)
1	You frequently used medical jargon or frequently made several frightening or alarming comments. You addressed sensitive topics in an abrupt manner, or a manner which expressed judgment.	<ul style="list-style-type: none"> - “Migraine is a neurological disease characterized by recurrent moderate to severe headaches, often in association with a number of autonomic nervous system symptoms.” - “Your risk of stroke really quite high.” - “Well, your smoking really doesn’t help matters.”
2		Any of the above, but student acknowledges (“that may have sounded scarier than I intended”) or tries to modify these problems (“That was a lot of medical language. Let me try again.”)
3	You occasionally used medical jargon without explaining it in layman’s terms. You rarely made unduly frightening comments. You addressed sensitive topics professionally but in a detached manner.	<ul style="list-style-type: none"> -Above behaviors occur no more than once in encounter. -Sensitive topics are addressed clinically. -There is little sense of collaboration as you explore these matters.
4		No instances of the behaviors noted for 0.
5	You used medical terms as needed and explained them in a way I could understand without my asking. You explained serious concerns and findings in a clear but compassionate way. You addressed sensitive topics in a way that made me to feel at ease.	<ul style="list-style-type: none"> -Explanations of medical terms are embedded in student’s way of talking with you. -Uses illustrations and metaphors as appropriate. -Acknowledges transitions into potentially frightening or sensitive topics, “we need to discuss some things that may be troubling for you.” -Uses “us” or “we” and otherwise conveys a sense of collaboration as you tackle sensitive topics, “Can we work on your smoking together?”

Making Decisions ☐ Not applicable to this case.

Rating	Description	Sample Statements (Things a student might say or do)
1	You decided on the treatment plan without asking for my input. You did not include me in decision-making. You did not assess my willingness to execute the plan.	“We are going start you on two medications for the migraines. One you will take every day and the other you will take when you first notice one coming on. Some people get a little nauseous for the first few weeks on these, but you can deal with that.”
2		Perfunctory (“that sounds okay, doesn’t it?”) inquiry about your view of the plan.
3	You presented me with different treatment options but did NOT ask for my treatment preference.	
4		
5	You presented me with different treatment options, provided rationale for each, and assessed my treatment preference. You helped me choose an option in collaborative way.	<p>- “We could go with a two-medication approach that would make it highly unlikely that’d ever have to tolerate a full-blown migraine. They are expensive though, and some people get nauseous as a result. Alternatively, we could go with the one medication that you take at the beginning of a headache and work together on some lifestyle changes that would likely reduce the number of migraines you have. What do you think? “</p> <p>-Ideally, this kind of statement would also include recognition of patient’s values (“I know you’re not wild about medications”) and, in some cases, explanation of how the medications work.</p>

Supporting Emotions & Fostering Relationship

Rating	Description	Sample Statements (Things a student might say or do)
1	You did not maintain eye contact, or your eye contact was uncomfortable. Your body language was closed or off-putting. You rarely reflected my emotions. I did not feel you connected with me as a person.	-Student looks away, keeps eyes fixed on notes or looks around room in an avoidant or inattentive way. -Arms are crossed, posture is stiff and/or student keeps an unusual amount of distance between you. -Ignores even very obvious (crying, "I'm worried") expressions of emotion
2		-Eye contact and body language are variable but generally not conducive to connecting with you. -Emotional reflections are rare and perfunctory, "It sounds like you are upset."
3	You maintained eye contact. Your body language was open. You reflected my emotions a few times in the encounter. You were pleasant but distant. I did not feel that genuine interest in me as a person was demonstrated.	-Eye contact, body language and emotional reflections are consistently used throughout the encounter. -Emotional reflections are accurate and timely. -However, all are provided in a very clinical way. These behaviors are not shaped by you as an individual.
4		-Warmth and genuine connection are present at times. -Emotional reflections are sensitive and nuanced. They indicate emotional inferences on student's part. "So, you are concerned that the trajectory of your diabetes will be the same as your dad's? I imagine that more than a little frightening."
5	Your body language and demeanor were warm and inviting. You frequently reflected my emotions. We connected well, and you demonstrated genuine interest in me as a person.	-These behaviors are consistent throughout the encounter. -The advanced student may use touch (touching your arm, hand on the shoulder) to emphasize concern or offer comfort. -The overall sense of the encounter is that the student is concerned and curious about you as an individual and that this extends beyond the encounter.

Ending the Encounter

Checklist Item	Sample Statements (Things a student might say or do)
The learner summarized my reason for visit.	“Okay, so it sounds like you have been having headaches for the last few weeks. They start in the back of your head and move forward and they are getting more severe and worrisome.” This summary can be done before OR after the physical exam.
The learner checked for accuracy of their summary.	“Did I get the details correct? Anything else that is important for me to know?” “Please feel free to correct me if I am wrong as I summarize.”
The learner provided me with instructions on what do after he/she left the room.	“Okay, I’m going to step out and talk to Dr. Harper. Please wait here and we will be back in a few moments to speak with you together.” Do NOT give credit if learner just says he/she will step out or simply says “thank you” and exits.

CITED LITERATURE

CAE Healthcare: <https://caehealthcare.com/learningspace/enterprise/>. Accessed 2012.

Calhoun, A.W., Rider, E.A., Meyer, E.C., Lamiani, G., Truog, R.D.: Assessment of communication skills and self-appraisal in the simulated environment: Feasibility of multirater feedback with gap analysis. Simul Health. 4:22-29:2009.

Federation of State Medical Boards of the United States and the National Board of Medical Examiners, Step 2 clinical skills (CS): Content description and general information. Philadelphia, NBME, 2015.

Hegazi, I., Wilson, I.: Maintaining empathy in medical school: it is possible. Medical Teacher. 35; 1002-1008:2013.

Hojat, M., Mangione, S., Nasca, T.J., Rattner, S., Erdmann, J.B., Gonnella, J.S., Magee, M.: An empirical study of decline in empathy in medical school. Medical Educator, 38;934-941:2004.

Humphris, G.M., Kaney, S.: The Liverpool brief assessment system for communication skills in the making of doctors. Adv Health Sci Educ Theory Pract. 6:69-80; 2001.

Makoul, G.: Essential elements of communication in medical encounters: The Kalamazoo consensus statement. Acad Med. 76;390-393:2001.

Makoul, G. The SEGUE framework for teaching and assessing communication skills. Patient Educ Couns. 45;23-34:2001.

Messick, S.: Validity.. In: Educational Measurement, ed. R.L. Linn, pp. 13-103. New York: American Council on Education/Macmillan, 1989.

Peterson, E.B., Calhoun, A.W., Rider, E.A: The reliability of a modified Kalamazoo consensus statement checklist for assessing the communication skills of multidisciplinary clinicians in the simulated environment. Patient Educ Couns. 96;411-418:2014

Sanchez-Reilly, S.E., Wittenberg-Lyles, E.M., Villagran, M.M.: Using a pilot curriculum in geriatric palliative care to improve communication skills among medical students. American Journal of Hospital Palliative Care, 24, 131-136:2007.

VITA

NAME Jamie Ann Cvengros

EDUCATION

1997 – 2001	B.S.	Loyola University of Chicago, Chicago, IL <i>Bachelor of Science, Honors in Psychology</i>
2001 – 2004	M.A.	University of Iowa, Iowa City, IA <i>Master of Science in Psychology</i>
2004 – 2008	Ph.D.	University of Iowa, Iowa City, IA <i>Doctor of Philosophy in Psychology</i>
2007 – 2008		Rush University Medical Center, Chicago, IL <i>Predoctoral Clinical Internship, Health Psychology Track</i>
2008 – 2009		Rush University Medical Center, Chicago, IL <i>Postdoctoral Fellowship, Behavioral Sleep Medicine</i>
2015 – present		University of Illinois at Chicago, Chicago, IL <i>Master of Health Professional Education, expected 2018</i>

ACADEMIC APPOINTMENTS

2017 – present	<i>Associate Professor</i> Department of Behavioral Sciences Rush University Medical Center, Chicago, IL
2017 – present	<i>LCME Faculty Accreditation Lead</i> Rush Medical College, Chicago, IL
2016 – present	<i>Director, Clinical Communication Skills Training & Research</i> Rush Medical College, Chicago, IL
2014 – 2017	<i>Director, Primary Care Behavioral Health Service</i> Associates in Internal Medicine Rush University Medical Center, Chicago, IL
2010 – 2016	<i>Associate Director, Behavioral Sleep Medicine Training Program</i> Sleep Disorders Service and Research Center Rush University Medical Center, Chicago, IL
2010 – 2016	<i>Director, CPAP Adherence Service</i> Sleep Disorders Service and Research Center Rush University Medical Center, Chicago, IL

- 2009 – 2017 *Assistant Professor*
Department of Behavioral Sciences
Rush University Medical Center, Chicago, IL
- 2009 – 2012 *Laboratory Director*
Sleep Disorders Service and Research Center
Rush University Medical Center, Chicago, IL
- 2004 – 2006 *Graduate Instructor*
Department of Psychology
University of Iowa, Iowa City, IA

CERTIFICATIONS AND LICENSURE

- 2014 Certificate Program in Standardized Patient-Based Education
Department of Medical Education, University of Illinois at Chicago
- 2013 Certificate Program in Primary Care Behavioral Health
Center for Integrated Primary Care, University of Massachusetts Medical School
- 2010 – present Certified in Behavioral Sleep Medicine
- 2009 – present Licensed Clinical Psychologist, State of Illinois (License #071007723)

HONORS AND AWARDS

- 2017 *Southern Group on Educational Affairs Medical Education Scholarship Award (MESA)* for Outstanding Presentation Award for Undergraduate Medical Education (UME). Award given for excellence in workshop presentation at the annual SGEA meeting.
Workshop Title: Struggling Medical Learners: Realistic Approach to Improving Performance
- 2015 – 2016 *Cohn Research Fellowship*, Rush University Medical Center, Office of Academic Affairs and Mentoring Program. Competitive one-year research fellowship (with 20% protected time) awarded for educational research.
Project title: Validation of Tools for Assessment of Integrated Clinical Skills.
- 2014 *Most Impactful Patient Experience Improvement Award*, Rush University Safety and Quality Fair. Award given to project with greatest impact on patient experience and satisfaction.
Poster title: Improving Hospitalists Communication
- 2009 *Abstract Excellence Award*, Sleep Research Society. Recipient of award based on scientific for an oral paper presentation at the Annual Meeting of the American Professional Sleep Societies.
Paper Title: Identifying Predictors of Compliance to Behavioral Recommendations in CBT for Insomnia
- 2003 *Meritorious Student Paper Award*, Society of Behavioral Medicine. Recipient of award based on scientific merit for an oral paper presentation at the Annual Meeting of the Society of Behavioral Medicine.
Paper Title: Development and Validations of the Perceived Social Barriers to Adherence Scale

- 2001 – 2006 *Presidential Graduate Fellowship*, University of Iowa. Recipient of \$22,000 fellowship plus tuition remission (annually for five years) awarded to department-nominated doctoral student.
- 2001 *Elected to Alpha Sigma Nu (Jesuit Honor Society)*, Loyola University of Chicago. Recipient of highest honor awarded at Jesuit institutions for students who excel in academic performance and demonstrate an appreciation and commitment to the Jesuit ideals of scholarship, loyalty, and service.
- 2001 *Elected to Phi Beta Kappa (National Honor Society)*, Loyola University Chicago. Inducted a member for demonstrated excellence in liberal arts education.
- 2001 *Summa cum Laude*, Loyola University Chicago. Recipient of honors designation for maintaining undergraduate GPA of greater than 3.9 of 4.0.
- 1998 – 2001 *Presidential Scholarship*, Loyola University of Chicago. Recipient of \$10,000 tuition scholarship award (annually for three years) to students based on academic excellence.
- 1997 – 1998 *Damen Scholarship*, Loyola University of Chicago. Recipient of \$7,000 tuition scholarship award to students based on academic excellence.

SOCIETY MEMBERSHIPS

- 2015 – Chicago Simulation Consortium
- 2014 – Association of Behavioral Sciences in Health Education
- 2013 – 2015 Association of Behavioral and Cognitive Therapy
- 2008 – American Academy of Sleep Medicine
- 2008 – Sleep Research Society
- 2008 – 2010 American Advancement for the Advancement of Science
- 2002 – 2008 American Psychosomatic Society
- 2001 – American Psychology Association
- 2001 – American Psychology Association, Division 38 Health Psychology
- 2001 – 2013 Society of Behavioral Medicine

TEACHING

Rush University: Course Leadership & Lecture Series

Rush Medical College

2016 – *Director of Clinical Communication Skills Training & Research*. Director of the communication skills curriculum of the medical college. Directorship includes oversight of all instructional content and assessment of clinical skills. Director is responsible for ensuring that students meet medical college program objectives. Total time: 400 hours per year.

2016 - *Co-Director, Clerkship Objective Structured Clinical Examinations (OSCEs)*. Co-director for structured standardized patient examination for third-year medical students. Examination administered three time per year for full class of students (130 students). Responsibilities include development of patient scripts and assessment tools and consultation on data analysis and reporting. Co-director is also responsible for student remediation as required. Total time: 120 hours per year.

2015 – 2016 *Co-Director, Clinical Skills Intensive.* Co-director for two-week intensive experience for first-year medical students. Directorship includes development of course objectives (20 hours), organization of course schedule and materials (20 hours), development of course examination (10 hours), facilitation of small group activities (15 hours), and oversight of course delivery (80 hours). Total time: 145 hours per year.

2015 – 2016 *Consultant, Primary Care Clerkship Objective Structured Clinical Examination (OSCE).* Consultant for structured standardized patient examination for third-year medical students. Examination administered monthly for 13 students per month. Consultation includes revision of patient scripts and assessment tools (5 hours) and consultation on data analysis and reporting (5 hours). Total time: 120 hours per year.

2014 – 2016 *Co-Director, Clinical Skills Assessment.* Co-director for standardized patient encounter assessment administered annually for late third-year medical students designed to assess communication and clinical reasoning skills and identify students in need of remediation in these domains. Examination development includes creation of 4 standardized patient scripts, development of assessment tools, and training of faculty collaborators (50 hours). Examination administration includes training simulated patients (2 hours), scheduling students (4 hours), coordination of simulated patient encounters (25 hours), scoring of examinations (15 hours), and remediation with students (15 hours). Total time: 111 hours per year.

2014 – 2016 *Co-Director, Preliminary Clinical Skills Assessment.* Co-director for simulated patient encounter assessment administered annually for beginning third-year medical students designed to assess communication and clinical reasoning skills and identify students in need of remediation in these domains. Examination development includes creation of 3 simulated patient scripts, development of assessment tools, and training of faculty collaborators (50 hours). Examination administration includes training simulated patients (2 hours), scheduling students (4 hours), coordination of simulated patient encounters (20 hours), scoring of examinations (10 hours), and remediation with students (15 hours). Total time: 101 hours per year.

2012 – 2017 *Communication Skills Content Leader, Physicianship Course.* Content leader for communication skills component of Physicianship course taught annually to first- and second-year medical students. Leadership includes training of 15 small group instructors (20 hours), development and revision of instructor materials (50 hours), creation of simulated patient scripts (25 hours), coordination of simulated patient encounters (30 hours per year), scoring of encounters (40 hours), and remediation with students (15 hours). Total time: 180 hours per year.

2010 – 2012 *Instructor, Communication Skills, Physicianship Course.* Small group instructor in Physicianship course taught annually to first- and second-year medical students. Small group instruction includes lectures/discussion sessions (15 hours), review of simulated patient encounters (40 hours), provision of individual feedback (40 hours), and remediation (10 hours). Total time: 105 hours per year.

2009 – 2017 *Sleep Didactic Series, Sleep Disorders Service and Research Center.* Provide annual lecture to residents, fellows, and graduate students on adherence to continuous positive airway pressure (CPAP) treatment as part of ongoing didactic series (1hour contact time, 10 hours preparation per year).

2009 – *Psychology Resident Seminar Series, Department of Behavioral Sciences*. Provide annual lecture on adherence in chronic illness as part of ongoing seminar series (1hour contact time, 10 hours preparation per year).

Rush College of Health Sciences

2014 – 2015 *Instructor, Behavioral Health Rotation, Physicianship Assistant Program*. Supervised first- and second-year physician assistant students monthly. Total time: 60 hours.

2011 – 2014 *Director, Behavioral Health Rotation, Physician Assistant Program*. Created new behavioral health rotation for first- and second-year physician assistant students offered monthly for 1-2 student per month. Directorship included recruitment and coordination of faculty preceptors (10 hours), creation of rotation syllabus and course materials (10 hours), completion of student evaluations (10 hours), and supervision of students (60 hours). Total time: 90 hours per year.

Rush University: Invited Lectures

Rush Medical College

1. Baker, B., Blood, A., Braderic, M., Boyd, K., **Cvengros, J.**, Dedhia, R., et al., (2015). *Lessons Learned: Central Group on Educational Affairs 2016 Conference*. Continuing medical education presentation to Rush Medical College.
2. **Cvengros, J.** (2013). *Sleep and Productivity: How Much Sleep Do I Really Need?* Presentation to Rush Student Wellness Club.
3. **Cvengros, J.** (2010). *Improving Patient Adherence: The Role of Patient-Centered Care*. Presentation in Physicianship Course to first-year medical students.

Rush University Medical Center

1. **Cvengros, J.** (2013). *Behavioral Approaches to Sleep Disorders*. Presentation at Psychiatry Teaching Rounds, Department of Psychiatry.
2. **Cvengros, J.** (2013). *60 Second Assessment to Predict CPAP Use?* Presentation at Grand Rounds, Sleep Disorders Service and Research Center.
3. **Cvengros, J.** (2013). *Novel Ways to Improve CPAP Compliance*. Presentation at Grand Rounds, Sleep Disorders Service and Research Center.
4. **Cvengros, J.** (2011). *Fatigue, Sleep, Chronobiology, and Patients with Cancer*. Presentation at Grand Rounds, Sleep Disorders Service and Research Center.
5. **Cvengros, J.** (2010). *Parasomnias: A Walkthrough ICSD-2*. Presentation at Grand Rounds, Sleep Disorders Service and Research Center.

6. **Cvengros, J.** (2008). *Sleep Disorders Associated with Post-Traumatic Stress Disorder*. Presentation at Grand Rounds, Sleep Disorders Service and Research Center.
7. **Cvengros, J.** (2008). *Patient Preference for and Perceptions of the Healthcare Encounter*. Presentation at Grand Rounds, Department of Behavioral Sciences.

Regional Institutions: Course Leadership & Lecture Series

University of Iowa,

2006 – 2007 *Course Instructor, Abnormal Psychology*. Course instructor for course on abnormal psychology for undergraduate students. Presented weekly 120-minute lectures to approximately 40 students covering major psychological disorders such as mood disorders, anxiety disorders, personality disorders, schizophrenia, and substance use disorders. Developed course syllabus, graded student assignments and papers, and prepared and scored examinations.

2004 – 2005 *Course Instructor, Introduction to Clinical Psychology*. Course instructor for course on clinical psychology for undergraduate students. Presented weekly 120-minute lectures to approximately 40 students covering topics such as assessment, diagnosis, and psychotherapy. Developed course syllabus, graded student assignments and papers, and prepared and scored examinations.

Regional Institutions: Invited Lectures

1. **Cvengros, J.** (2014). *Sleep medicine opportunities for psychologists*. Presentation to psychology interns. University of Chicago, Chicago, IL
2. **Cvengros, J.** (2011). *Behavioral Sleep Medicine*. Presentation to sleep medicine fellows. Northwestern Medical Center, Chicago, IL.
3. **Cvengros, J.** (2005). *Patient Adherence to Medical Regimens*. Presentation at Center for Disabilities and Development, University of Iowa Hospitals and Clinics.
4. **Cvengros, J.** (2005). Symmetry between patients and the healthcare context: Relationship to patient outcomes. Presented at Department of Psychology Brown Bag Forum, University of Iowa.

Regional Professional Courses, Workshops, and Lectures

1. **Cvengros, J.** (2015). *Strategies for Improving Adherence: Meeting Our Patients Where they Are*. Continuing Medical Education presentation at Kishwaukee Hospital, DeKalb, IL.
2. Behel, J., **Cvengros, J.**, & Blood, A. (2014). *From Intuition to Validation: Development of a Communication Skills Rubric*. Presentation at the annual meeting of the Chicago Simulation Consortium, Loyola Medical Center, Chicago, IL.
3. **Cvengros, J.** (2013). *How to improve patient adherence*. Presentation at the Chicagoland Gerontological Advanced Practice Nurses Association, Gottlieb Hospital, Melrose Park, IL.

4. **Cvengros, J.** (2012). *Maximizing Patient Adherence: The Role of Patient Centered Care*. Presentation at the Great Lakes Transplant Society Workers Society, Chicago, IL.
5. **Cvengros, J.** (2011). *Behavioral Sleep Medicine: Helping Patient Cope with CPAP and Insomnia*. Presentation at the Illinois Society of EEG Technologists, Oak Lawn, IL.

National Professional Courses, Workshops, and Lectures

1. **Cvengros, J.** (2016). Creating Visual Quality Control Data: Sharing Visual Reliability Data with Faculty and SPs. Invited webinar for the Association of Standardized Patient Educators.
2. Behel, J. & **Cvengros, J.** (2015). *Humanities in Medicine: Elective Experience or Required Course?* Panel discussion at 45th annual meeting of the Association for Behavioral Sciences in Medicine, Minneapolis, MN.
3. Ong, J. & **Cvengros, J.** (2015). *The Nighttime as a Niche: The Practice of Sleep Psychology*. Presentation at the annual Fast Forward Conference of Division 42, American Psychological Association, Chicago, IL.
4. **Cvengros, J.** (2014). *Behavioral approaches to CPAP adherence*. In A. Cartwright (Chair), *Advanced Sleep Medicine Course for NP and MA*. Two-day certification course for nurse practitioners taught at the American Academy of Sleep Medicine, Darien, IL.
5. **Cvengros, J.** (2014). *Comorbid insomnia and sleep apnea*. In A. Cartwright (Chair), *Advanced Sleep Medicine Course for NP and MA*. Two-day certification course for nurse practitioners taught at the American Academy of Sleep Medicine, Darien, IL.
6. **Cvengros, J.** (2014). *Strategies for improving adherence: Meeting our patients where they are*. Invited lecture at the 33rd annual meeting of the Gerontological Advanced Practice Nurses Association, Orlando, FL.
7. Colvin, L., Cartwright, A., **Cvengros, J.**, Dettenmeier, P., Freedman, N., & Woitke, R. (2014). *PAP adherence: Utilizing team-based care and a behavioral approach to maximize success*. Clinical workshop conducted at the 28th annual meeting of the Associated Professional Sleep Societies, Minneapolis, MN.
8. Cartwright, A., Colvin, L., **Cvengros, J.**, Dettenmeier, P., Freedman, N., & Woitke, R. (2014). *Maximizing positive airway pressure therapy using a team-based approach*. Panel discussion conducted at the 36th annual meeting of the American Association of Sleep Technologists, Minneapolis, MN.
9. Colvin, L., Freedman, N., **Cvengros, J.**, Kirschhoff, M., & Woitke, R. (2014). *Maximizing positive airway pressure therapy using a team-based approach*. Panel discussion conducted at the annual meeting of the American College of Chest Physicians (CHEST), Chicago, IL.

10. Crawford, M., Ong, J., Carney, C., **Cvengros, J.**, & Manber, R. (2013). *Establishing Multidisciplinary Links Between Physicians and Behavior Specialists in Mental Health and Well-Being-A Focus on Sleep Medicine*. Panel discussion at the 47th annual conference of the Association for Cognitive and Behavioral Therapy, Nashville, TN.

Mentorship to Trainees

Clinical Supervisor for Postdoctoral Fellows in Behavioral Sleep Medicine

2014 – 2016 Hannah Lund, Ph.D.

Clinical Supervisor for Health Psychology Residents in Behavioral Sleep Medicine

2009 – 2010 Hannah Marchand

Andrea Busby

Sooyeon Suh

Jamie Jackson

2010 – 2011 Natalie Stevens

Betina Yanez

Stephanie Fitzpatrick

Jean-Philippe Gouin

2011 – 2012 Liisa Hantsoo

Shawn Katterman

Heather Gunn

Lisa Nackers

2012 – 2013 Sarah Simpson

Catherine Benedict

Eleshia Morrison

Afton Koball

2013 – 2014 Lindsey DeBoer

Valerie Hoover

Ariel Neikrug

Vivian Rodriguez

2014 – 2015 Emily Lattie

Teresa Lillis

Lauren Bradley

Eric Schmidt

2015 – 2016 Diana Chirinos

Luz Garcini

Maisa Ziadni

Rina Fox

2016 – 2017 Victoria Webb

Laura Bouchard

Research Supervisor for Research Assistants in Behavioral Sleep Medicine

2012 – 2014 Sarah Snyder

Clinical Supervisor of Physician Assistant Students

2012 – 2015 26 students (names can be provided on request)

Membership on Student Thesis Committees

2016 – *Doctoral Committee (Maureen Smith)*, Rush University Nursing College. Served as a committee member for DNP candidate doing research on light therapy to improve CPAP adherence.

2014 – 2015 *Thesis Committee (Kelly Kestler)*, Rush University College of Health Sciences. Served as committee member for a MA candidate in Nutrition Sciences Program doing research on adherence to exercise among patients with cancer.

COMMUNITY SERVICE

Invited Community Presentations

1. Ong, J. & **Cvengros, J.** (2012). *Do you have a sleep disorder?* Presentation at Rush Generations: A Program for Health and Aging, Chicago, IL.
2. Ong, J. & **Cvengros, J.** (2011). *Insomnia and Sleep Apnea: Do you have a sleep disorder?* Presentation at Rush Generations: A Program for Health and Aging, Chicago, IL.
3. **Cvengros, J.** (2009). *Tips for healthy sleep.* Presentation at Jewish Federation of Metropolitan Chicago, Chicago, IL.
4. **Cvengros, J.** (2008). *Sleep and stress among adolescents.* Presentation at St. Ignatius High School, Chicago, IL.

CLINICAL SERVICE

2014 – 2017 *Director, Primary Care Behavioral Health Program*, Associates in Internal Medicine, Rush University Medical Center. I provide cognitive-behavioral intervention for poor adherence to treatment, weight management, smoking cessation, and insomnia. I also provide brief cognitive-behavioral treatment for mood and anxiety disorders.

This program is the first of its kind at Rush University Medical Center and represents a step towards fully-integrated primary care behavioral health. This program has grown to include an additional psychologist at Associates in Internal Medicine, and the I have been approached by medical directors of other primary care services (Lifetime Medical and Rush University Internists) at Rush who are interested in housing primary care behavioral health within their respective clinics.

2013 – *Initiative to Improve Communication and Patient Experience*, Office of the Chief Medical Officer, Rush University Medical Center. This initiative is designed to improve patient satisfaction by improving physician communication patterns. I observe and provide confidential feedback to new physicians at the start of their career at Rush and established physicians who have had suboptimal ratings by patients.

This initiative has received regional and national recognition as a novel method to improve patient-provider communication. Work from this initiative has received the “Most Impactful Patient Experience Improvement” award from Rush University, as has been featured in the NEJM Catalyst. Research on the effectiveness of this initiative is ongoing, and creation of an in-house teaching academy is in development.

2010 – 2017 *Director, CPAP Adherence Program, Rush Sleep Disorders Service and Research Center, Rush University Medical Center.* I provide cognitive-behavioral intervention for poor adherence to continuous positive airway pressure (CPAP) treatment.

This program is the first of its kind in Chicago and has quickly grown in reputation making the Rush Sleep Disorders Center unique among centers in the area. This program has become a key site of unique training in behavioral sleep medicine, and I have mentored 32 psychology residents in this clinical model. This program has also spawned a successful research program in the prediction and improvement of adherence to treatment for sleep disorders (2 manuscripts, 6 national presentations, 2 pilot grants), as well as development of a novel adaptive intervention to improve CPAP adherence which has completed pilot testing (Cvengros, et al., 2016, Behavioral Sleep Medicine).

COMMITTEE AND ADMINISTRATIVE SERVICES

National Committees

2013 – 2015 *Secretary, Health Research Council, American Psychological Association Division 38.* This council promotes and supports research in the area of health psychology through teleconferences, symposiums, and granting research awards to outstanding graduate student proposals.

Rush University Committees

- 2017 - 2019 *Chair, Committee for Curriculum and Evaluation.* The committee is responsible for the overall review and oversight of the medical curriculum.
- 2016 - 2017 *Chair-Elect, Committee for Curriculum and Evaluation.* The committee is responsible for the overall review and oversight of the medical curriculum.
- 2015 – 2017 *Program Objectives Work Group, Rush Medical College.* This committee is responsible for the full revision and promotion of the Rush Medical College program (terminal) objectives.
- 2015 – 2017 *Objectives Redesign Workgroup, Rush Medical College.* This committee is responsible for the review and revision of all course and session objectives for the preclinical years as part of the curriculum renewal slated to begin in 2017.
- 2015 – 2017 *Co-Chair, Assessment Redesign Workgroup, Rush Medical College.* This committee is responsible for the review and revision of all assessment methods for the preclinical years as part of the curriculum renewal slated to begin in 2017.
- 2015 – *Chair, Curriculum Committee, Department of Behavioral Sciences, Rush University Medical Center.* This committee is responsible for overseeing and coordinating teaching activities among department faculty members. Members liaison with the Rush Medical College and Rush College of Health Sciences. (Member since 2011).
- 2015 – 2017 *Advisory Committee, Department of Behavioral Sciences, Rush University Medical Center.* This committee is responsible for making recommendation to the chair

regarding faculty evaluation and promotion, faculty development, and department operations.

- 2014 – 2017 *Chair, Physicianship Work Group*, Rush Medical College. This committee is responsible for the management and oversight of the Physicianship program, including student assessment, course evaluation, and content development. (Served as vice-chair, 2013 – 2014, and member since 2011).
- 2014 – 2017 *Faculty Liaison, Special Committee on the Rush Medical College Environment*. This student-developed and student-led committee is responsible for receiving and acting upon reports of student mistreatment.
- 2014 – *Committee on Curriculum and Evaluation (CCE) Council*, Rush Medical College. The CCE council, composed of chairs and vice-chairs of the CCE workgroups, is responsible for oversight of the Rush Medical College curriculum.
- 2014 – 2017 *Clinical Skills Vertical Integration Work Group*, Rush Medical College. This workgroup is responsible for cataloging current curriculum in clinical skills, creating a curriculum map for clinical skills, identifying gaps in the curriculum, and proposing new course content to fill those gaps.
- 2013 – 2016 *Committee on Student Performance and Evaluation*, Rush Medical College. This committee is responsible for developing policies concerning student status, evaluation and promotion; reviewing the academic performance of students; making recommendations concerning promotion, graduation and dismissal of students; and determining requirements for remedial action for students who have failed medical college courses.
- 2012 – *Committee on Curriculum and Evaluation*, Rush Medical College. This standing committee is responsible for the design, content and evaluation of the courses and curriculum of Rush Medical College.
- 2009 – 2010 *Faculty Search Committee*, Department of Behavioral Sciences, Rush University Medical Center. This committee was responsible for reviewing applications, coordinating interviews, and providing recommendations to the chair to fill a position in the Psychosocial Oncology section.
- 2009 – *Resident Search Committee*, Department of Behavioral Sciences, Rush University Medical Center. This committee is for reviewing applications, conducting interviews, and providing recommendations for ranking of applicants.

Other Institution Committees

- 2005 – 2006 *Faculty Search Committee*, Department of Psychology, University of Iowa. This committee was responsible for reviewing applications, coordinating interviews, and providing recommendations to the chair for a faculty position in the Department of Psychology.
- 2003 *Prospective Student Coordinator*, Department of Psychology, University of Iowa. Responsible for coordinating activities including housing, meals, and tours, for students interviewing for the graduate program in Psychology.

2002 – 2004 *Graduate Student Advisory Committee*, Department of Psychology, University of Iowa
This committee is responsible for identifying the needs of graduate students in the department and working with department administration to meet these needs.

SCIENTIFIC AND SCHOLARLY ACTIVITIES

Editorial Boards

Journal of Behavioral Medicine (2015 – present)

Ad-Hoc Reviewer

Annals of Behavioral Medicine
Arthritis Care & Research
Behavioral Sleep Medicine
British Journal of Health Psychology
Child Abuse and Neglect
Cognitive Behavioral Therapist
European Journal of Cardiovascular Prevention and Rehabilitation
Health Psychology
Heart and Lung
Journal of Alternative and Complementary Medicine
Journal of Consulting and Clinical Psychology
Journal of General Internal Medicine
Journal of Psychosomatic Research
Patient Preference and Adherence
Sleep
Sleep Disorders
Sleep Medicine
Sleep Medicine Reviews

Oral Presentations at Regional, National & International Meetings

Workshop Presentations

1. **Cvengros, J.A.**, Ridinger, H., & Gunn, J. (2017). Struggling Medical Learners: Realistic Approach to Improving Performance. Presented at Central Group on Educational Affairs, Association of American Medical Colleges Annual Conference, Chicago, IL.
2. Ridinger, H., & **Cvengros, J.A.** (2017). Struggling Medical Learners: Realistic Approach to Improving Performance. Presented at Southeastern Group on Educational Affairs, Association of American Medical Colleges Annual Conference, Charlottesville, VA.

Paper Presentations

1. **Cvengros, J.A.** (2016). Development and Validation of Tools for Assessment of Integrated Clinical Skills. Presented at 2nd annual Rush University Mentoring Programs Symposium, Rush University Medical Center, Chicago, IL.

2. **Cvengros, J.A.** (2016). Evidence for Reliability and Validity of the Rush Interpersonal and Communication Skills Rating Form. Presented at the 17th annual Masters in Health Professionals Education Summer Conference, University of Illinois at Chicago, Chicago, IL.
3. Neikrug, A., Park, M, **Cvengros, J.A.**, & Baldwin, D. (2014). PAP use criteria and change of hemoglobin A1c." Presented at the 28th Annual scientific meeting of the Associational Professional Sleep Societies, Minneapolis, MN.
4. Ong, J.C., Kong, Al., Lederman, M., Park, M., Crisostomo, M. I., **Cvengros, J.A.**, & Wyatt, J.K. (2012) Developing Clinical Profiles and a Multidisciplinary Approach for Patients with OSA and Comorbid Insomnia. Presented at the 24th Annual scientific meeting of the Associated Professional Sleep Societies, Boston, MA.
5. **Cvengros, J.A.**, Ong, J.C., & Manber, R. (2009). Identifying predictors of compliance to behavioral recommendations in CBT for insomnia. Presented at the 23rd Annual scientific meeting of the Associational Professional Sleep Societies, Boston, MA.
6. **Cvengros, J.A.**, Christensen, A.J., Hillis, S.L., Wallston, K.A., & Rosenthal, G.E. (2005). Patient and physician attitudes in the healthcare context: Attitudinal symmetry predicts patient satisfaction and adherence. Presented at the 26th Annual scientific meeting of the Society of Behavioral Medicine, Boston, MA.
7. **Cvengros, J.A.** Development and validation of the Perceived Social Barriers to adherence scale. Presented at Graduate Student Symposium, Department of Psychology, University of Iowa. January 2003.
8. **Johnson (Cvengros), J.A.** & Christensen, A.J., (2003). Development and validation of the perceived social barriers scale. Presented at the 24th Annual scientific meeting of the Society of Behavioral Medicine, Salt Lake City, UT. (Received Meritorious Student Paper Award).

Poster Presentations

1. Smith, M., Swider, S., Ailey, S., & **Cvengros, J.A.** (2017). Sleep Health Disparity: Examining the Effect of a Group Intervention to Improve CPAP Adherence in Medicaid Patients Diagnosed with OSA. Presented at the Association of Community Health Nursing Educators (ACHNE) Annual Institute, Baltimore, MD.
2. Misiunaite, I., Fournier, C.L., Fogg, L.F., Molina, T.A., **Cvengros, J.A.**, Eastman, C.I., & Crowley, S.J. (2016). Sleep onset time in late-sleeping teens: the impact of after-school time use. Presented at the 30th Annual scientific meeting of the Associated Professional Sleep Societies, Denver, CO.
3. Fullam, F., Behel, J., **Cvengros, J.A.**, & Clemens, K. (2015). Physicians shadowing impact on doctor-patient communication. Poster presented at National Forum for Institute for Healthcare Improvement, Orlando, FL.

4. Behel J.M., Grichanik M., **Cvengros, J.A.**, & Kent, P.M. (2015) Quick Response Technology in the Flipped Classroom for Real Time Course Evaluations. Poster presented at the Association of American Medical Colleges Central Group on Educational Affairs, Central Group on Student Affairs, and Central Organization of Student Representatives Combined Spring Meeting. Columbus, Ohio, USA.
5. **Cvengros, J.A.**, Behel, J.M., & Blood, A. (2015). Using simulated patients in faculty development: Improving reliability and awareness of the student experience. Poster accepted for presentation at the 15th Annual meeting of the International Meeting for Simulation in Healthcare, New Orleans, LA.
6. Snyder, S., Simpson, S., Khou, C., Crawford, M., **Cvengros, J.A.**, & Ong, J.C. (2014). Predictors of outcomes and satisfaction with mindfulness-based treatments for insomnia. Poster presented at the 28th Annual scientific meeting of the Associational Professional Sleep Societies, Minneapolis, MN.
7. Fullam, F., McLaughlin, M., Dutta, S., Kim, J., Behel, J., Cannar, J., Manning, L., & **Cvengros, J.A.** (2014). Improving hospitalists communications. Poster presented at the annual Rush Quality & Safety Fair.
8. Behel, J., & **Cvengros, J.** (2014). *Teachers as Learners: Vulnerability and Faculty Development*. Poster presented at 44th annual meeting of the Association for Behavioral Sciences in Medicine, Newport Beach, CA.
9. Kestner, K., Tangney, C., Weiss, C., Bacon, C., Gauthier, J., & **Cvengros, J.A.** (2014). A Pilot Survey of Breast Cancer Survivors and Daughters in Chicago, Risk Perception and Physical Activity: A Cross-Sectional Study. Poster presented at the annual Rush Research Forum, Chicago, IL.
10. **Cvengros, J.A.**, Crawford, M., Manber, R., & **Ong, J.C.** (2013). The relationship between dysfunctional beliefs about sleep and adherence in a multicomponent behavioral treatment for insomnia. Poster presented at the annual Rush Research Forum, Chicago, IL.
11. **Cvengros, J.A.**, Christensen, A.J., Hillis, S., & Kaboli, P. (2009). Patient preference for and perceptions of provider behavior: Impact of symmetry on patient adherence and satisfaction. Poster presented at the 30th Annual scientific meeting of the Society of Behavioral Medicine, Montreal, Quebec, Canada.

Respironics Sleep and Respiratory Research Foundation

Title: Wrist Actigraphic Monitoring and Daily Sleep Diaries: Supplemental data of high clinical utility in the analysis of CPAP adherence and treatment response in OSA patients.

Principal Investigator: James Wyatt, Ph.D.

Role: Co-Investigator

Project Dates: 2007 – 2009 Total Costs: \$86,460

Summary: The goal of this pilot project was to examine the clinical and research utility of actigraphy monitoring and sleep diaries in predicting and interpreting CPAP adherence among patients with obstructive sleep apnea. A secondary goal was to identify novel methods to define “adherence” and their association with patient outcomes.

National Institutes of Health, Agency for Healthcare Research and Quality

U18HS016094-03

Title: University of Iowa Older Adults CERT (PI: Elizabeth A. Chrischilles, Ph.D.)

Subproject Title: Patient-provider symmetry, treatment adherence, and clinical outcomes.

Principal Investigator: Alan Christensen, Ph.D.

Role: Co-Investigator

Project Dates: 2006 – 2011

Summary: The goal of this project was to look at the relationship between patient and provider preferences for communication on adherence to chronic illness treatment and subsequent effect of clinical management of disease.

Department of Veterans Affairs, Health Services Research & Development

IIR 04-201

Title: Patient provider attitudes in the healthcare context.

Principal Investigator: Alan Christensen, Ph.D.

Role: Co-Investigator, Study Coordinator

Project Dates: 200 - 2009 Total Costs: \$553,400

Summary: The goal of this study was to examine the effect of symmetry between patient preferences and provider attitudes on medication adherence to hypertension among patients in the VA system.

National Institutes of Health, National Institute of Diabetes, Digestive, and Kidney Diseases

R01DK072325-03

Title: Behavioral intervention and adherence in hemodialysis.

Principal Investigator: Alan Christensen, Ph.D.

Role: Co-Investigator

Project Dates: 2005 – 2008 Total Costs: \$450,000

Summary: The goal of this project was to conduct a randomized clinical trial of a behavioral intervention based on a Self-Regulation Theory to improve medication adherence and decrease inter-dialysis weight gain among patients with end-stage renal disease.

Current Funding

National Institutes of Health, National Heart, Lung, and Blood Institute

5R01HL112756-02

Title: Teen School-Night Sleep Extension: An Intervention Targeting the Circadian System

Principal Investigator: Stephanie Crowley-McWilliams

Role: Co-Investigator

Project Dates: 2014 - 2019 Total Costs: \$593,942

Summary: The goal of this project is to develop and systematically test a novel intervention using light therapy to advance sleep patterns and increase sleep duration among teens.

BIBLIOGRAPHY

Original full-length manuscripts

1. Lillis, T., Gerhart, J., Burns, J., **Cvengros, J.A.** (submitted). Sleep Disturbance Mediates the Association of Posttraumatic Stress Disorder Symptoms and Pain in Cancer Patients. *American Journal of Hospice and Palliative Medicine*.
2. **Cvengros, J.A.**, Behel, J., Finley, E.K., Kravitz, R., Grichanik, M., & Dedhia, R. (2016). Breaking Bad News: A Small Group Learning Module and Simulated Patient Case for Pre-Clerkship Students. *MedEd Portal Publications. MedEdPORTAL Publications*. 12:10505.
https://doi.org/10.15766/mep_2374-8265.10505
3. Ong, J.C., Crawford, M., Kong, A., Park, M., **Cvengros, J.A.**, Crisostomo, M.I., Alexander, E., & Wyatt, J.K. (2017). Management of Obstructive Sleep Apnea and Comorbid Insomnia: A Mixed-Methods Evaluation. *Behavioral Sleep Medicine*, 15, 180-197.
4. Howren, M.B., Kellerman, Q.D., Hillis, S.L., **Cvengros, J.A.**, Lawton, W., & Christensen, A.J. (2016). Behavioral self-regulation intervention on patient adherence in hemodialysis: A randomized controlled trial. *Annals of Behavioral Medicine*, 50, 167-176..
5. **Cvengros, J.A.**, Rodriguez, V.M., Snyder, S., Hood, M.M., Crawford, M., & Park, M. (2017) An adaptive treatment to improve positive airway pressure (PAP) adherence in patients with obstructive sleep apnea: A proof of concept trial. *Behavioral Sleep Medicine*, 15, 345-360.
6. **Cvengros, J.A.**, Crawford, M., Manber, R., & Ong, J.C. (2015). The relationship between beliefs about sleep and adherence to behavioral treatment combined with meditation for insomnia. *Behavioral Sleep Medicine*, 13, 52-63.
7. Hood, M.M., Corsica, J., **Cvengros, J.A.**, & Wyatt, J. (2013). Impact of a brief dietary self-monitoring intervention on weight change and CPAP adherence in patients with obstructive sleep apnea. *Journal of Psychosomatic Research*, 74, 170-174.
8. Christensen, A.J., Howren, M.B., Hillis, S.L., Kaboli, P., Carter, B.L., **Cvengros, J.A.**, Wallston, K.A., & Rosenthal, G.E. (2010). Patient and physician beliefs about control over health: Association of symmetrical beliefs with medication regimen adherence.. *Journal of General Internal Medicine*, 25, 397-402.
9. **Cvengros, J.A.**, Christensen, A.J., Hillis, S., & Kaboli, P. (2009). Patient preferences for and reports of provider behavior: Impact of congruence on patient outcomes. *Health Psychology*, 28, 660 – 667.
10. Kaboli, P.J., Baldwin, A.S., Henderson, M.S., Ishani, A., **Cvengros, J.A.**, & Christensen, A.J. (2009). Measuring preferred role orientations for patients and providers in Veterans Administration and university general medicine clinics. *The Patient*, 2, 33-38.

11. Baldwin, A.S., **Cvengros, J.A.**, Christensen, A.J., Ishani, A., & Kaboli, P.J. (2008). Preferences for a patient-centered role orientation: Association with patient information seeking behavior and clinical markers of health. *Annals of Behavioral Medicine*, 35, 80-86.
12. **Cvengros, J.A.**, Harper, D. C., & Shevell, M. (2007). Pediatric headache: An examination of process variables in treatment. *Journal of Child Neurology*, 10, 1172-1181.
13. **Cvengros, J. A.**, Christensen, A.J., Hillis, S.L., & Rosenthal, G. A. (2007). Patient and physician attitudes in the healthcare context: Attitudinal symmetry predicts patient satisfaction and adherence. *Annals of Behavioral Medicine*, 33, 262-268.
14. McDade-Montez, E., Christensen, A.J., **Cvengros, J.A.**, & Lawton, W.J. (2006). The role of depression in withdrawal from renal dialysis. *Health Psychology*, 25, 198-204.
15. **Cvengros, J.A.**, Christensen, A.J., & Lawton, W.J. (2005). Health locus of control and depression in chronic kidney disease: A dynamic perspective. *Journal of Health Psychology*, 10, 677-686.
16. **Cvengros, J.A.**, Christensen, A.J., & Lawton, W.J. (2004). The role of perceived control and preference for control in adherence to a chronic medical regimen. *Annals of Behavioral Medicine*, 27, 155-161.
17. Bryant, F.B., & **Cvengros, J.A.** (2004). Distinguishing hope and optimism: Separating the wheat from the chaff. *Journal of Social and Clinical Psychology*, 23, 273-302.

Book Chapters

1. Christensen, A.J. & **Cvengros, J.A.** (in press). The patient provider interaction and promoting effective behaviors of patients in health care. In E. Fisher, et al. (Eds.) Principles and Concepts of Behavioral Medicine: A Global Handbook. Springer: New York, NY.
2. Logmahnee, D.A. & **Cvengros, J.A.** (2014). Promoting Healthy Sleep Practices for Children and Adolescents. In S. Sheldon (Eds). Principles and Practices of Pediatric Sleep Medicine. Elsevier: New York, NY
3. Wyatt, J.K. & **Cvengros, J.A.** (2012). Delayed and advanced sleep phase disorders. In T.J. Barkoukis, et al. (Eds.) Therapy in Sleep Medicine. Elsevier: New York, NY.
4. Wyatt, J. K., **Cvengros, J.A.**, & Ong, J.C. (2012). Clinical assessment of sleep-wake complaints. In C. Morin & C. Espie (Eds) The Oxford Handbook of Sleep and Sleep Disorders. Oxford University Press: New York, NY.

5. **Cvengros, J.A.** & Wyatt, J.K. (2009). Circadian rhythm disorders. In K. Lichstein (Ed) *Sleep Medicine Clinics*, 4, 495 - 505. Ong, J.C., Cvengros, J.A., & Wyatt, J.K. (2008). Behavioral interventions for insomnia. *Psychiatric Annals*, 38, 590-596.
6. **Cvengros, J.A.**, & Christensen, A.J. (2006). Adherence to dialysis treatment of end-stage renal disease. In W. O'Donohue and E. Levensky (Eds.), *Promoting Treatment Adherence: A practical handbook for health care providers*. SAGE Publishing: Thousand Oaks, CA.
7. McDade-Montez, E., **Cvengros, J.**, & Christensen, A. (2005). Personality and individual differences. In J. Kerr, R. Weickunat, and M. Moretti (Eds.), *The ABC of Behaviour Change: A guide to successful disease prevention and health promotion*. Elsevier Science: San Diego, CA.
8. **Cvengros, J.A.** (2004). Stimulus Control. In *Encyclopedia of Health Psychology* (pp. 295). Kluwer Plenum Academic: New York.
9. **Cvengros, J.A.** (2004). Incidence and Prevalence. In *Encyclopedia of Health Psychology* (pp. 150, 220). Kluwer Plenum Academic: New York.
10. Christensen, A.J., & **Johnson (Cvengros), J.A.** (2002). Patient adherence with medical treatment regimens: An interactive approach. *Current Directions in Psychology*, 11, 94-97

Invited Commentaries

1. **Cvengros, J.A.** (2014). One size does not fit all: matching patients with insomnia treatment modality. Comment on web- vs. telehealth-based delivery of cognitive behavioral therapy for insomnia: a randomized controlled trial. *Sleep Medicine*, 15, 161-162.
2. **Cvengros, J.A.** (2013). Sleeping too little too late: a comment on Loft and Cameron. Comment on Using mental imagery to deliver self-regulation techniques to improve sleep behaviors. *Annals of Behavioral Medicine*, 46, 251-252.

Other Media

1. **Cvengros, J.A.** (2016). Recognizing depression. Invited piece for Rush Health and Wellness Blog. Can be accessed at <https://www.rush.edu/health-wellness/discover-health/recognizing-depression>.
2. **Cvengros, J.A.** (2016). Nonverbal signs of depression. Invited piece for Rush University Medical Center Newsletter: Communication Issue.