2021

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Cooper Rowan Medical Journal: [https://rdw.rowan.edu/crjcsm](https://rdw.rowan.edu/crjcsm)

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**Recommended Citation**
Roloff, Kendra L.; Parker, Patricia; Schafer-McLean, Rhonda; and West, Robert (2022) "Effect of Provider Education on Urinary Incontinence Knowledge and Assessment," *Cooper Rowan Medical Journal*: Vol. 3: Iss. 1, Article 7.
DOI: 10.31986issn.2578.3343_vol3iss1.6
Available at: [https://rdw.rowan.edu/crjcsm/vol3/iss1/7](https://rdw.rowan.edu/crjcsm/vol3/iss1/7)

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Effect of Provider Education on Urinary Incontinence Knowledge and Assessment
Effect of Provider Education on Urinary Incontinence Knowledge and Assessment

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ABSTRACT

Nearly 50% of women in the United States will experience urinary incontinence at some point during their lives. Urinary incontinence impacts multiple aspects of a woman’s life, yet remains undiagnosed by primary care providers. The Women’s Preventative Service Initiative released a recommendation in 2018 to screen all women annually for urinary incontinence. The recommendation was in response to the lack of women who seek care for urinary incontinence. The purpose of this project was to implement education and reminders for primary care providers, in order to improve urinary incontinence knowledge and assessment of women 18 years of age or older. The project was carried out in a primary care clinic with primary care providers serving as the participants. A quasi-experimental one-group pretest-posttest design was utilized. Data from a five question pre- and posttest were compared. An independent samples t-test, using a 95% confidence interval, was used to compare the pre- and posttest. Statistical significance (p-value <.05) was demonstrated for all five questions.

Results indicate primary care providers who are educated about urinary incontinence in women demonstrate improved knowledge and assessment of the prevalent problem. Early intervention can soften the economic burden, improve quality of life, and improve treatment outcomes. Implementation of a urinary incontinence education program coupled with reminders can improve primary care knowledge and clinical decisions regarding urinary incontinence in women.

Keywords: urinary incontinence, women, incontinence screening, urinary incontinence discussions
INTRODUCTION

Problem Statement
Urinary incontinence (UI) is the unintentional leaking of urine. One in four women in the United States (U.S.) currently experience UI and nearly 50% of women will experience UI at some point during their lives.\(^1\) Despite affecting multiple aspects of a woman’s health, UI remains underdiagnosed by primary care providers (PCPs).\(^2\)

The purpose of this quality improvement (QI) project is to implement education and reminders for PCPs to improve UI knowledge and assessment for women 18 years of age or older. The project intervention consisted of a UI educational session delivered to the PCPs. Reminders were also used to improve UI assessment and consisted of educational handouts available in each exam room, a UI discussion protocol hanging on each exam room door, and a UI assessment tool imbedded into the electronic medical record (EMR). Imbedding an assessment tool into the EMR served as an implementation of change.

This QI project had both short- and long-term objectives. The short-term objectives were to (a) increase PCP knowledge on UI, (b) increase UI assessment for women 18 years of age and older, and (c) increase discussions about UI between the PCP and the patient. The long-term objectives were (a) UI screening will become routine for PCPs at the clinic site when a woman presents for an annual health maintenance exam and (b) annual UI education will be included in the didactic women’s health curriculum lecture series.

The project was inspired by the 2018 recommendation by the Women’s Preventive Service Initiative (WPSI) to screen all women annually for incontinence.\(^3\) WPSI is a federally supported collaborative program led by The American College of Obstetricians and Gynecologists (ACOG). The recommendation was in response to the lack of women who sought and received care for UI.

Available Knowledge

The study population was chosen because the literature demonstrates UI is a significant problem for women in the U.S. Additionally, a clinic site with a residency program was chosen in hopes of instilling good practice habits in resident physicians, given that learning new habits is easier than unlearning old knowledge.\(^4\)

A broad etiology exists for UI, therefore, the lack of diagnosis is multifactorial. Women are not seeking UI treatment due to embarrassment, belief UI is a normal part of aging, and unawareness treatment exists.\(^4,5\) Inadequate screening by the PCP and limited education on the scope of UI also contributes to the lack of diagnosis.\(^3,6-9\) According to one study, only 50% of women discussed the problem with their provider and of that 50%, only one-third received treatment.\(^5\) Another study indicated that providers initiated the conversation regarding incontinence with patients in only 5% of the time.\(^10\) Although UI is common, and is more prevalent as women age, it is never normal, and treatment is available.

Knowledge gaps remain for annual continence screening for women. Studies have not been evaluated for
the benefits and harms of annual continence screening for all women. Some studies suggest that annual screening may lead to over diagnosis of UI, which will lead to unnecessary and expensive tests, while others maintain early intervention is necessary to manage UI with conservative measures.\textsuperscript{3}

Despite the knowledge gaps, the literature agrees UI intervention should start at the level of primary care. Early intervention can soften the economic burden, improve quality of life (QOL), and improve treatment outcomes.\textsuperscript{11}

Rational

Lewin’s Change Theory is the organizing framework for this study. Psychologist, Kurt Lewin, developed several organizational change theories. The most influential of Lewin’s theories involving change process in human systems was his change theory. Lewin theorized a three-step change model known as the unfreeze-change-refreeze model that requires prior learning to be rejected and replaced. Lewin’s theory describes behavior as a dynamic balance of forces working in opposing directions. Lewin asserts that in order to bring about a change, the entire subject needs to be examined.\textsuperscript{12} Lewin’s change theory had the greatest influence for this project.

The nursing intervention of educating PCPs on UI knowledge and assessment for women, who present to their provider in a primary care clinic, is applicable to the Lewin’s Change Theory. Unfreezing with an educational session will inform the PCPs about the importance of assessing UI. The PCPs will be given tools to increase UI assessment that will facilitate change. In order for the change to become permanent, refreezing must occur.

The EMR will house the International Consultation on Incontinence Questionnaire Short Form (ICIQ-SF) result (positive, negative, or decline) and facilitate stability of the change. Having a measurement embedded into the EMR is necessary because studies have suggested that symptom assessment can be computerized, but if not seamlessly integrated into the EMR, symptoms are unlikely to be assessed.\textsuperscript{13} The overall analysis of Lewin’s Change Theory is that it clearly guides the organizing framework for this QI project.

Specific Aims

The purpose of this QI project was to implement education and reminders for PCPs to improve UI knowledge and assessment of women 18 years of age or older. Specifically, the projects short-term goals aimed to increase PCP knowledge on UI, increase UI assessment for women 18 years of age or older, and increase discussions about UI between the PCP and the patient.

METHODS

Context

The project site has a daily noon lecture for all providers. The principal investigator (PI) presented to the
project site during a daily noon lecture. Participant recruitment consisted of a five-minute introduction about the project delivered to the PCPs prior to the educational session. Following the introduction, the PCPs were informed the PI would step out of the room for five minutes, while they reviewed the study information sheet and decided if they would like to participate in the study. The purpose of the PI stepping out of the room was to avoid participation coercion. Those willing to participate completed the pre-questionnaire and placed it in a confidential envelope. The questionnaire consisted of five questions evaluating UI knowledge and current practices regarding UI (see Appendix Section 1). The questionnaire was produced by the PI and internally validated by experts in the field. Data for the study was collected via convenience sampling. After baseline data was collected via the pre-questionnaire, the PI delivered a 35-minute UI educational session, the purpose of which was to serve as the intervention. The education was offered to all providers, whether they participated in the project or not. The educational session covered UI assessment, diagnosis, and treatment, as well as the importance of assessing UI in a primary care clinic.

**Interventions**

Reminders served as clinical practice tools to help improve UI assessment. First, clinical education handouts were available in exam rooms to assist PCPs with UI discussions. The educational handouts consisted of urge and stress incontinence, as well as conservative treatment options. Second, a paper and electronic version of the ICIQ-SF was available for PCPs to utilize. The electronic version was housed in the EMR with a drop-down box for the ICIQ-SF score to be entered if the tool was utilized (see Appendix Section 2). Third, a metal candy dish with a bladder magnet attached was sitting on each desk in the patient exam rooms to remind the PCP to discuss UI. Fourth, a laminated UI discussion protocol was placed on exam room doors to remind PCPs to discuss UI as they walked into the room.

The ICIQ-SF is a valid and reliable screening tool and has many uses including screening for UI, evaluating the degree of UI, determining the perceived cause of the symptoms, and facilitating provider-patient discussions regarding UI.\(^{14}\) The questionnaire consisted of five items. Three questions were based on a Likert-scale and examined the frequency of urine loss, the perceived amount of urine loss, and the impact urine loss has on a patient’s QOL. Possible scores for each question range from 0 to 5, 0 to 6, and 0 to 10 respectively. Item four of the questionnaire is the sum of the first three questions and ranges from 0 to 21 with greater values indicating increased severity.\(^{14}\) The fifth item is a self-diagnosis item. It describes eight instances when urine loss occurs, and the patient is asked to check all that apply.

Six weeks into the project, a second educational session was delivered at the project site. The education was delivered during a daily noon lecture and covered similar material as the initial educational session. Participants were not recruited from the second educational session; it was for knowledge reinforcement only.
The project’s duration was 12 weeks. At the conclusion of the project, the post-questionnaire (identical to the pre-questionnaire), as well as a provider satisfaction survey (see Appendix Section 3) were distributed at a noon lecture. The provider satisfaction survey was produced by the PI and internally validated by experts in the field and consisted of ten questions related to the project and two demographic questions.

**Measure s and Analysis**

Data for this project was collected twice. The first data collection consisted of the pre-questionnaire and the second data collection consisted of the post-questionnaire and provider satisfaction survey. Completed questionnaires were secured by the researcher, as per the stipulations of the Institutional Review Board (IRB). The intervention was administered at a primary care single-site clinic. Individuals involved with data collection and/or analysis completed Collaborative Institutional Training Initiative (CITI) training. The data was collected anonymously from the participants and results were analyzed and presented in an aggregate manner.

Two separate surveys were used to assess the project outcomes. The surveys consisted of the Primary Care Provider Pre- and Post-Questionnaire (five identical questions/statements for both pre- and post-intervention), and the Primary Care Provider Satisfaction Survey (twelve questions, two of which were demographic). For the primary care provider pre- and post-intervention questionnaires, the data collection tools consisted of Likert-scale questions which were analyzed by independent samples t-tests for statistically significant differences. The individual mean and standard deviation were calculated for each of the five questions on the provider satisfaction survey. To facilitate UI assessment, the ICIQ-SF was utilized at the PCP’s discretion.

**Ethical Considerations**

A quasi-experimental one-group pretest-posttest design was used to accomplish the intended outcomes. Prior to the project, permission was granted by the chief medical officer at the project site. An additional IRB application was not indicated for the agency. The response from the IRB initial letter indicated the project met the criteria for exemption. An exempt IRB application was sent and approved by the institution. Following IRB approval, the project was implemented.

**RESULTS**

Sixteen PCP’s were recruited to participate in the project, which equates to a 76% participant response rate (16/21). A total of 16 pre-questionnaires and 15 post-questionnaires, as well as 14 provider satisfaction surveys (measured via a six-point Likert-scale) were collected. The demographic data indicate 93.33% (14/15) of project participants were family practice resident physicians and 6.67% (1/15) were family practice physicians. Of the participants, 93.33% (14/15) have been practicing for 0-3 years and 6.67%
have been practicing for greater than 9 years.

Statistical significance (95% CI) was found between the pre- and post-questionnaires for all five questions (see Appendix Section 1). Questions 3, 4, and 5 assessed the participant’s perceived knowledge of UI assessment, diagnosis, and treatment. Results demonstrate 13.33% (2/15) rated their knowledge of UI assessment as excellent on the post-questionnaire; while 20% (3/15) rated their knowledge of UI diagnosis as excellent, and 6.67% (1/15) of participants rated their knowledge of UI treatment as excellent on the post-questionnaire.

Questions 4, 5, and 6 of the provider satisfaction survey evaluated the degree to which participants rated their knowledge on UI assessment, diagnosis, and treatment increased after the educational session. Results demonstrate 40% (6/15) ‘absolutely agreed’ that their UI knowledge on assessment increased after the educational session, while 46.66% (7/15) ‘absolutely agreed’ that their UI knowledge on diagnosis increased, and 46.66% (7/15) ‘absolutely agreed’ that their UI knowledge on treatment increased after the educational session. Thus, based on project goals, the first and second short-term goals were not met.

Despite not achieving the project goals, statistical significance was demonstrated between pre- and post-questionnaires in regard to knowledge. Additionally, although less than 50% absolutely agreed their UI knowledge on assessment, diagnosis, and treatment increased, 100% (15/15) of the participants either agreed, strongly agreed, or absolutely agreed their UI knowledge increased. Thus, all participants agreed to some extent that their UI knowledge increased, and the first short-term objective was met.

The third and fourth short-term goals were analyzed utilizing the provider satisfaction survey and aggregate data obtained from the EMR. Results indicate 73.33% (11/15) of participants reported they ‘always’ or ‘very frequently’ utilized the UI provider evaluation tool (ICIQ-SF) for postmenopausal women and 53.33% (8/15) for premenopausal women. During the 12-week project implementation, 349 females 18 years of age or older were seen for an appointment by the project participants. Of the 349 total females, 80% (280/349) were screened for UI using the ICIQ-SF. Of the females screened, 27.5% (77/280) screened positive for UI, 61.5% (172/280) screened negative for UI, and 11% (31/280) refused to complete the questionnaire. Based off of the results, the second and third short-term goals were met, as was the second short-term objective.

The fifth and sixth short-term goals were analyzed using the post-questionnaire and provider satisfaction survey. Results indicate 60% (9/15) of participants reported they ‘always’ or ‘very frequently’ discuss UI with postmenopausal women and 13.33% (2/15) ‘always’ or ‘very frequently’ discuss UI with premenopausal women. Additionally, 93.33% (14/15) reported their UI discussions increased because of this project. Based on the results, the fifth short-term goal was met in relation to postmenopausal women but was not met with premenopausal women. The sixth short-term goal was met. Despite not accomplishing a 50% discussion rate with premenopausal women, statistical significance was found
between the pre- and post-questionnaire in regard to UI discussions with pre-menopausal women. Therefore, the third short-term objective, increase discussions about UI between the PCP and patient, was met based on project goals.

**DISCUSSION**

**Summary and Interpretation**

The most unexpected finding from this project was the overall lack of UI knowledge and UI assessment the participants indicated prior to the intervention. The finding supported the importance of this project. Analyzing the short-term goals specifically, two of the six short-term goals and all three short-term objectives were met for this project. The most surprising finding was the failure to meet the first short-term goal by a significant margin. Despite not achieving the first and second short-term goal, 100% of the participants agreed to some degree the education improved their UI knowledge.

Other studies examining UI discussions indicate 50% of women discussed the problem with their provider. Another study indicated that providers initiated the conversation regarding incontinence with patients in only 5% of the time. This project demonstrated providers at the clinic site discussed UI at a higher frequency than the reported studies, even prior to the intervention. After the intervention, providers discussed UI significantly more often.

**LIMITATIONS**

Convenience sampling was utilized for this project and the sample size was small, thus limiting the generalizability and strength of the data. In addition, lack of a control group contributes to the project’s limitations. Participants consisted mainly of resident physicians. Resident schedules vary; therefore, some of the resident physician project participants had minimal clinic time during the twelve-week project intervention. The limited clinic time afforded them less opportunities to discuss UI and use the UI tools.

Another limitation was that the PI for the project was not employed by the clinic site and was unable to provide daily oversight of the project. To assist with facilitation, the PI did have a project mentor, who was routinely present at the clinic site. Nonetheless, the absence of the PI at the clinic site was a limitation. Further limitations include the second educational session was not as well attended as the first and it was not recorded. Therefore, only a small number of participants received the reinforcement educational session. Finally, the current model of care allows PCPs 15 to 20 minutes to address a patient’s acute and
chronic medical problems, as well as complete required segments and metrics within the EMR. Therefore, despite one’s best intentions, time restricts the PCP from addressing additional problems, such as UI.

**Implications and Future Directions**

The results are encouraging, as they demonstrate UI education can impact clinical discussions. All participants indicated the reminder system increased their knowledge on UI assessment, diagnosis, and treatment. Additionally, 87% of participants will continue to assess UI using the ICIQ-SF. Larger studies involving a more diverse group of PCPs are encouraged for future research. Despite the small sample size, the pre- and post-questionnaires demonstrated that practice change had taken place. This study encouraged assessing UI with all females who present for an appointment during the 12-week study duration, regardless of their reason for an appointment. Future studies should focus on UI assessment for patients presenting for an annual exam, so that discussing the topic of UI does not seem out of place during the visit. As a result of the project, the PI has been asked to provide an annual UI lecture at the clinic site for resident physicians lending to the sustainability of this project.

Limited research exists examining the effects that UI education has on clinical practice outcomes; specifically, a UI educational session delivered to primary care resident physicians. Consequently, further research focused on implementation of UI education for primary care resident physicians should be conducted.

**CONCLUSIONS**

Urinary incontinence is a significant problem for women in the U.S. Despite its prevalence, UI remains underdiagnosed by PCPs. The lack of UI diagnosis by the PCP is due in part to a lack of knowledge in assessment, diagnosis, and treatment of UI. This project demonstrated that an educational session coupled with reminders can not only improve UI knowledge, but also increase discussions between the PCP and patient. Early intervention can soften the economic burden, improve QOL, and improve treatment outcomes. The results of this project could be promising for the education of future PCPs and women with UI.
REFERENCES


Table 1 Analysis of Pre and Post-Questionnaire

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APPENDIX:

Appendix Section 1. Pre- and Post-Questionnaire

1. With what frequency do you discuss urinary incontinence (UI) with POSTmenopausal females? (Check the response that is most applicable.)
   - Always
   - Very Frequently
   - Occasionally
   - Rarely
   - Very Rarely
   - Never

2. With what frequency do you discuss urinary incontinence (UI) with PREmenopausal females? (Check the response that is most applicable.)
   - Always
   - Very Frequently
   - Occasionally
   - Rarely
   - Very Rarely
   - Never

3. On a scale of 1 to 5 (where 5 indicates excellent), I would rate my current knowledge of UI assessment as:
   - 5 (excellent)
   - 4 (good)
   - 3 (average)
   - 2 (fair)
   - 1 (poor)

4. On a scale of 1 to 5 (where 5 indicates excellence), I would rate my current knowledge to diagnose UI as:
   - 5 (excellent)
   - 4 (good)
   - 3 (average)
   - 2 (fair)
   - 1 (poor)

5. On a scale of 1 to 5 (where 5 indicates excellence), I would rate my current knowledge of UI treatment options as:
   - 5 (excellent)
   - 4 (good)
   - 3 (average)
   - 2 (fair)
   - 1 (poor)
Appendix Section 2. The International Consultation on Incontinence Questionnaire Short Form (ICIQ-SF) was the UI screening questionnaire available for PCPs to assess UI. Adapted from Bristol Urological Institute. (2014).

1. How often do you leak urine? (check one box)
   0 □ Never
   1 □ About once a week or less often
   2 □ Two or three times a week
   3 □ About once a day
   4 □ Several times a day
   5 □ All the time

2. How much urine do you usually leak (whether you wear protection or not)? (check one box)
   0 □ None
   2 □ A small amount
   4 □ A moderate amount
   6 □ A large amount

3. Overall, how much does leaking urine interfere with your everyday life? Please circle a number between 0 and 10.
   Not at all 0      1      2      3      4      5      6      7      8      9      10 A great deal

4. ICIQ-SF score: sum 1+2+3= _____

5. When does urine leak? (please check all that apply to you)
   □ Never—urine does not leak
   □ Leaks before you can get to the toilet
   □ Leaks when you cough or sneeze
   □ Leaks when you are asleep
   □ Leaks when you are physically active/exercising
   □ Leaks when you have finished urinating and are dressed
   □ Leaks for no obvious reason
   □ Leaks all the time
Appendix Section 3. Provider satisfaction survey

1. How many educational sessions did you attend?
   - 1
   - 2

2. If you attended both educational sessions did you find two sessions helpful or redundant
   - Not applicable, I only attended 1 educational session
   - Helpful
   - Redundant

3. I increased my discussions about UI with patients because of this study
   - Yes
   - No

4. The UI educational session and tools increased my knowledge on UI assessment
   - Absolutely Agree
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree
   - Absolutely Disagree

5. The UI educational session and tools increased my knowledge on UI diagnosis
   - Absolutely Agree
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree
   - Absolutely Disagree

6. The UI educational session and tools increased my knowledge on UI treatment options
   - Absolutely Agree
   - Strongly Agree
   - Agree
   - Disagree
   - Strongly Disagree
   - Absolutely Disagree

7. I utilized the paper form ICIQ-SF to assess my POSTmenopausal female patients for UI
   - Always
   - Very Frequently
   - Occasionally
   - Rarely
   - Very Rarely
   - Never

8. I utilized the paper form ICIQ-SF to assess my PREmenopausal female patients for UI
   - Always
   - Very Frequently
   - Occasionally
   - Rarely
   - Very Rarely
   - Never
9. I will continue to assess UI in **POST** menopausal women 18 years of age and > using the ICIQ-SF
   □ Yes
   □ No

10. I will continue to assess UI in **PRE** menopausal women 18 years of age and > using the ICIQ-SF
    □ Yes
    □ No

Please answer the following demographic questions

1. I am a
   □ Family Practice Resident Physician
   □ Family Practice Physician
   □ Nurse Practitioner
   □ Physician’s Assistant

2. I have been practicing for
   □ 0-3 years
   □ 4-6 years
   □ 7-9 years
   □ >9 years