Screening for Stress Urinary Incontinence at the 6-week Postpartum Visit

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Abstract

Background: Stress urinary incontinence, or involuntary loss of urine on effort/physical exertion, sneezing, or coughing, affects approximately 25% of women during the first three months postpartum. Although not life-threatening, this problem has profound negative effects on a woman's hygiene, social/work life, sleep and sexual satisfaction, and increases the risk of anxiety and depression. Unfortunately, this common postpartum problem is frequently under-reported and under-treated; only about half of women diagnosed with urinary incontinence discuss this issue with their provider.

Local Problem: At a women's health clinic in northern Virginia, it was determined that there was no standardized stress urinary incontinence screening program at the 6-week postpartum visit. The purpose of this Doctor of Nursing Practice Project was to implement a screening tool for stress urinary incontinence in postpartum women, and a follow-up plan to be used by providers.

Interventions: A standardized process for screening and diagnosing stress urinary incontinence was created for the the 6-week postpartum visit. Providers in the Women's Health Clinic were trained on how to interpret and document the Questionnaire for Urinary Incontinence Diagnosis-Stress Scale at the clinic's monthly staff meeting, the weekly provider meeting, or one-on-one. The pelvic floor physical therapist instructed on proper pelvic floor exercises for patients with stress urinary incontinence to standardize patient teaching. The scale was then printed in a bright yellow box on the Women's Health Clinic Postpartum Questionnaire for patients to fill-out when they checked-in. The providers interpreted the scale to identify those patients with stress urinary incontinence, and provided those patients with the Postpartum Pelvic Floor Exercises Handout, which detailed the follow-up plan suggested by the pelvic floor physical therapist at the site.

Results: During the 10-week pre-implementation period, there were 99 6-week postpartum visits, zero patients were screened for stress urinary incontinence, and only one patient was diagnosed with stress urinary incontinence. During the 10-week implementation period, there were 103 6-week postpartum visits, 77 patients were screened for stress urinary incontinence, and 22 patients were diagnosed with stress urinary incontinence. Therefore, screening increased from 0% to 74.8%, and diagnosis increased from 1% to 21.4%. The results of the Z-tests to compare sample proportions screened and diagnosed pre- and post-implementation were both statistically significant and indicated rejecting the null hypothesis that the sample proportions were equal.

Conclusions: Implementing a screening tool for stress urinary incontinence at the 6-week postpartum visit increased the proportion of patients diagnosed with this condition. The short-term goals of this Doctor of Nursing Practice Project, to help providers identify more women with stress urinary incontinence at 6-weeks postpartum and to set-up an appropriate follow-up plan for these women, were met. This postpartum screening program has the potential to improve communication between patients and providers, who have under-reported and under-treated stress urinary incontinence in the past. Increased identification of this condition allows for treatment of patients who previously suffered in silence.

Screening for Stress Urinary Incontinence at the 6-week Postpartum Visit

Stress urinary incontinence (SUI), defined by the International Continence Society as the "complaint of involuntary loss of urine on effort or physical exertion (e.g. sporting activities), or on sneezing or coughing" (Haylen et al., 2010, p. 5), affects approximately 25% of women during the first three months postpartum (Thom & Rortveit, 2010). Unfortunately, this common postpartum problem is frequently under-reported and under-treated. In fact, studies have shown that only about half of women diagnosed with urinary incontinence (UI) discuss this issue with their provider (Duralde et al., 2016). Although not life-threatening, this problem is significant because it has profound negative effects on a woman's hygiene, social/work life, sleep and sexual satisfaction, and increases the risk of anxiety and depression (Ternent, Vale, Buckley, & Glazener, 2009).

According to the World Health Organization (WHO, 2013), UI should be assessed at every postpartum contact. In addition, there is substantial evidence supporting screening high-risk populations for SUI with one of several validated tools. Overall, despite moderate hierarchy and quality ratings, a review of the literature supported the purpose of this evidence translation, implementation of the Questionnaire for Urinary Incontinence Diagnosis-Stress Scale (QUID-Stress Scale) for SUI at the 6-week postpartum visit, because this intervention could not harm patients and would identify patients who needed follow-up (Bradley et al., 2005). According to the Chief Midwife at the project site (personal communication, January 30, 2018), prior to the implementation of this project, the clinic had no standardized SUI screening program at the 6-week postpartum visit. The purpose of this Doctor of Nursing Practice (DNP) Project was to implement a screening tool for SUI for 6-week postpartum women at a women's health clinic in northern Virginia. The short-term goals of this DNP project were to help providers identify more

women with SUI at 6-weeks postpartum and to set-up an appropriate follow-up plan for these women. The long-term goal is to decrease the prevalence of women with SUI at the project site.

Theoretical Framework

The Health Belief Model was chosen because it is a health behavior model which was developed to increase the success of a tuberculosis screening program in the 1950s; this model was used to assist in implementing a screening program for SUI (Hochbaum, Rosenstock, & Kegels, 1952). The Health Belief Model states that "A person's motivation to undertake a health behavior can be divided into three main categories: individual perceptions, modifying behaviors, and likelihood of action . . . the combination of these factors causes a response that often manifests into action" (Hochbaum et al., 1952, p. 2). Five key concepts of interest from the Health Belief Model are: perceived susceptibility, perceived seriousness, perceived benefits, barriers to taking action, and cues to action (Hochbaum et al., 1952). The first four were relevant to the practice problem because they were perceptions that broadened the meaning of the practice problem for the providers who were responsible for caring for the health of this population, and cues to action was the concept that acted as the final push to motivate providers to intervene in the problem. The theory proposition from the Health Belief Model that explains the relationships between these concepts is: "an individual's perception of the levels of susceptibility and seriousness provide the force to act. Benefits (minus barriers) provide the path of action. However, it may require a 'cue to action' for the desired behavior to occur" (Hochbaum et al., 1952, p. 3). This particular relationship is discussed in the theorists' description of the concept of cues to action; it structures the concepts into a path to a solution.

Utility of the Model

Applying the Health Belief Model to the practice problem of postpartum SUI resulted in a better understanding of this problem and how to solve it. This theory emphasizes the importance of identifying and understanding individual perceptions of the susceptibility and seriousness (two key concepts in the theory) as the first step in predicting the likelihood of action (Hochbaum et al., 1952). The factor of perception was not explored when the practice problem was originally identified; the project ultimately included an adaptation of Champion's Health Belief Model Scale to assess the staffs' perceptions of the problem. These scales were first developed for use with breast cancer screening in 1984, because there was no way to standardize measurement of the concepts in the Health Belief Model at the time. They have since been adapted for other practice problems such as cervical cancer screening (Champion, 1999; Chapman Lambert, Azuero, Enah, & McMillan, 2017). It was important to assess perceptions, because if the problem was not important to key stakeholders, they would not have viewed it as a serious threat to the health of the population they care for, and there would not have been a practice change. Providers at the project site requested this implementation project specifically, so a baseline understanding of the seriousness and susceptibility of the problem was already present in some of the stakeholders. By assessing the perceptions of the rest of the team prior to implementation, there was an opportunity to identify inaccurate views and correct them.

In addition to broadening the view of the practice problem, the relationships between the concepts in this theory contributed to part of the intervention. The consequences of SUI on the health and quality of life of postpartum patients elicited the attention of providers and provided the shock needed to start the change in motion; however, it might not have been sufficient to produce behavioral change. When the perceived benefits, such as identifying/treating SUI, increasing quality of life, decreasing the risk for anxiety and depression in women, and

decreasing preventable heath care costs, outweighed the barriers to taking action, such as resistance to change and requiring extra appointment time, then the providers moved toward taking the action. When the barriers outweighed the benefits, the providers moved away from taking the action. At various points throughout the project, the implementation team elicited input from the staff to identify and rectify any unforeseen barriers. Ultimately, a cue to action was needed to trigger the behavioral change to occur (Hochbaum et al., 1952). This proposition guided the design of this DNP Project because it inspired the addition of a cue to action for the providers: the SUI screening tool was printed in a bright yellow box on the Women's Health Clinic Postpartum Questionnaire, the intake form each patient completes when they check into the Women's Health Clinic for their 6-week postpartum visit, as a trigger for the providers to screen.

Literature Review

The need to screen postpartum women, a high-risk group for SUI, at the 6-week postpartum visit is the focus of the evidence in this literature review. The review will begin broadly with evidence supporting that providers under-screen for patients with SUI, and patients with SUI under-report their symptoms to their providers. This discussion will be followed by a review of the effectiveness of routine screening in detecting patients with SUI. Finally, the review will conclude with evidence that the QUID-Stress Scale is a short, valid, and reliable instrument that can be used for diagnosis of SUI in the women's health clinical setting (see Table 1).

Three research studies were analyzed for evidence that provider screening rates for UI are low, and that only a fraction of women with SUI self-report their issues to their provider without being prompted. Badejoko, Bola-Oyebamiji, Awowole, Salako, and Ogunniyi (2016) conducted

a cross-sectional study of 1,250 women to determine the prevalence of UI and screening frequency in a general outpatient clinic in Nigeria. Only 4.2% of the women reported that they were asked about UI by their physician. None of the 65 women with UI self-reported their symptoms to their physician, and only 13.8% of these women were screened by their physician (Badejoko et al., 2016). Similarly, in a cohort study by Duralde et al. (2016), researchers identified determinants of the patient-provider discussion of incontinence in 969 women 40 years and older. Using a validated structured-item questionnaire, the researchers concluded that only 54.7% of women with incontinence discussed their incontinence with a health care provider (95% patient-initiated and 3% provider-initiated) (Duralde et al., 2016). Finally, Visser et al. (2012) identified women who did not consult a professional for their incontinence symptoms. In this survey study of 225 incontinent women 55 years and older, the investigators concluded that 64% of the sample were not registered as having UI by their primary care provider (Visser et al., 2012). In synthesis, these studies were not implementation studies; two studies used questionnaires to collect data, and one used a questionnaire and the QUID. Two of the three studies conducted their research with high-risk populations (women over the age of 40 or 55). In all four studies, the rates of UI self-reported by the patient, provider screening, and/or UI documentation in the patient's primary care chart were low, leaving many women undiagnosed and untreated (Badejoko et al., 2016; Duralde et al., 2016; Visser et al., 2012).

Two research studies and one clinical practice guideline (CPG) were analyzed for evidence that routine screening increases the detection of UI. In a retrospective chart review and prospective randomized clinical trial, Yazdany, Wong, and Bhatia (2011) evaluated the frequency of OB/GYN resident physician screening of UI in a general gynecology clinic. Of 196 new patient charts, the residents documented bladder symptoms in 16.3% of the charts (which is

far below the average prevalence). The rate of incontinence screening among residents was only 4% initially; interestingly, the addition of an alert-sticker to patient charts increased the screening rate by 30%. Furthermore, of 190 randomized charts, the residents documented bladder symptoms in 23.7% of the charts, which is an improvement (Yazdany et al., 2011). Sampselle et al. (2000) conducted a prospective formative evaluation study to test the effectiveness of AWHONN's evidence-based protocol for UI on increasing identification of the condition. 1,474 women in ambulatory care settings self-reported urinary frequency and volume of urine on an evaluation questionnaire; 57% of these patients were identified as incontinent with routine screening, versus population-based studies which report that approximately 40% of incontinent women disclose their condition to their provider (Sampselle et al., 2000). In 2013, the WHO published a CPG to identify content that should be included in postpartum maternal and newborn care, including that enquires should be made regarding micturition and UI at each postpartum contact; under normal circumstances, the only regularly scheduled postpartum contact is at 6-weeks postpartum. In synthesis, both research studies documented increased rates of UI diagnosis proportional to routine screening, and the WHO's CPG lends additional support to routine postpartum screening for UI (Sampselle et al., 2000, WHO, 2013; Yazdany et al., 2011). The study by Yazdany et al. (2011) differs from the other study because it successfully used a cue to action to increase screening rates in the population of interest.

Two research studies were analyzed for evidence to support implementation of the QUID at the practice site. Bradley et al. (2005) developed the QUID, a questionnaire for UI diagnosis in women (see Appendix A). They tested its reliability and validity by having a sample of 117 urogynecology outpatients with UI symptoms complete a questionnaire at enrollment, 1 week later, and 9 months later. The QUID diagnoses were compared with incontinence specialists'

clinical evaluations. For stress incontinence, accuracy was 0.81, internal consistency (Cronbach's α) was 0.85, test-retest reliability was 0.91, sensitivity was 0.85, and specificity was 0.71 (Bradley et al., 2005). The QUID has also been evaluated as an outcome measure in clinical trials (Bradley et al., 2010). In this study, the researchers measured the presence and frequency of stress and mixed UI in 444 women. Cronbach's α was 0.64 and the QUID correlated moderately with the Urinary Distress Inventory and the bladder diary (Bradley et al., 2010). In synthesis, Cronbach's α was slightly lower for SUI in the second study. However, since this measure depends on the number of items in a scale, this value is still adequate because the QUID-Stress Scale is a 3-item scale; this is especially true when weighing the risks and benefits of using a shorter questionnaire in a clinical setting (Bradley et al., 2005; Bradley et al., 2010).

Plan for Implementation

Project Type, Sample, and Setting

A quality improvement (QI) project focused on screening for SUI was implemented with a sample of patients and providers at a women's health clinic in northern Virginia. Inclusion criteria for the patient population included all patients seen in clinic for their 6-week postpartum visit during implementation. The patient sample size was n=103. Inclusion criteria for the provider sample included the staff obstetrician-gynecologists (OB/GYNs), certified nurse-midwives (CNMs), and women's health nurse practitioners (WHNPs). The number of providers in the clinic was n=15.

Procedures and Timeline

Two weeks prior to implementation, the DNP Project Leader trained 30 providers, nurses, medical technicians, and front desk staff at the clinic's monthly staff meeting. First, an

adaptation of Champion's Health Belief Model Scale was administered to assess the staff members' perceptions of the problem (Champion, 2009; Chapman Lambert et al., 2017; see Appendix B). Then, the background, purpose statement, literature review, tool, and procedures were explained during a Power Point presentation emphasizing the seriousness of SUI, the susceptibility in the postpartum population, the benefits of taking action, and the barriers to taking action (Hochbaum et al., 1952). After this, the QUID-Stress Scale was introduced, and the providers were taught how to interpret and document this tool. Finally, the pelvic floor physical therapist instructed on proper pelvic floor exercises for patients with SUI.

One week prior to implementation, the DNP Project Leader met with the assigned informatics specialist to discuss the data collection plan. The baseline gap analysis, a data report including number of 6-week postpartum visits, ages, and number of SUI diagnoses during 10-weeks pre-implementation, was obtained during the second week of implementation. Since the CNMs and WHNPs see the vast majority of the 6-week postpartum patients, the DNP Project Leader attended the CNM/WHNP weekly meeting one week before implementation to answer additional questions prior to the start date. One business day prior to implementation, the DNP Project Leader sent a reminder e-mail to the staff at the suggestion of the clinical site representative.

Implementation of this QI project took place over a 10-week period. On the first day of implementation, the QUID-Stress Scale was printed in a bright yellow box on the Women's Health Clinic Postpartum Questionnaire, for patients to fill-out when they check-in (see Appendix C). The providers interpreted the QUID-Stress Scale to identify those patients with score ≥ 4 (positive screen for SUI) and provided the Postpartum Pelvic Floor Exercises Handout to patients with score ≥ 4, which details the follow-up plan suggested by the pelvic floor physical

therapist at the DNP project site: specific pelvic floor exercises for the next six weeks, if no improvement by three months postpartum, follow instructions on the handout for referral to pelvic floor physical therapy (see Appendix D). The DNP Project Leader also taped a laminated, business card-sized "cheat sheet" with codes to the bottom left hand corner of every computer screen in all provider offices and exam rooms (See Appendix E).

During the first two weeks, the DNP Project Leader attended the clinic's morning huddles on Mondays and Fridays to answer questions and elicit feedback. One of the Women's Health Clinic registered nurses served as the project assistant and was also available to answer questions when the DNP Project Leader was not available.

During week seven, the DNP Project Leader attended the monthly provider meeting to review the mid-implementation data, and to review proper coding for 6-week postpartum visits, stress urinary incontinence screening, and stress urinary incontinence diagnosis. This information was also shared with all CNMs and WHNPs who were not in attendance via e-mail. In addition, the DNP Project Leader visited the Women's Health Clinic the same day to check: 1) the front desk materials to ensure that the Women's Health Clinic Postpartum Questionnaires and Postpartum Pelvic Floor Exercises Handouts were well-stocked and in the appropriate locations, and 2) all provider offices and exam rooms to ensure that the laminated, business card-sized "cheat sheets" with project-specific codes were still taped to the bottom left hand corner of every computer screen.

Data Collection and Tools

The QUID-Stress Scale was added to the Women's Health Clinic Postpartum Questionnaire, the intake form each patient completes when they check into the Women's Health Clinic for their 6-week postpartum visit. This questionnaire is comprised of three questions: Do

you leak urine (even small drops), wet yourself, or wet your pads or undergarments . . . 1. When you cough or sneeze?, 2. When you bend down or lift something up?, and/or 3. When you walk quickly, jog, or exercise? Each question is scored on a scale of 0-5: none of the time (0), rarely (1), once in a while (2), often (3), most of the time (4), and all of the time (5). The total score ranges from 0-15. A score ≥ 4 is a positive screen for SUI. The QUID-Stress Scale is a valid and reliable tool, with Cronbach's α as high as 0.85 developed by Bradley et al. in 2005.

Data Analysis

The final implementation data reports provided by the informatics specialist at the project site were used to determine:

1) Descriptive statistics for patient demographic data on age.

2) The proportion of patients screened for SUI at the 6-week postpartum visit post-implementation: Number of patients screened for SUI/Number of 6-week postpartum visits. The number of patients screened for SUI was determined by the presence of CPT code 96160 (Prev Medicine Admin of Health Risk Questionnaire Patient-Focused); this was a code assigned to the project by the coding department and was used by providers for the sole purpose of allowing the DNP Project Leader to track the number of patients screened. The number of 6-week postpartum visits was determined by the presence of ICD code Z39.2 (Encounter for routine postpartum follow-up).

3) The proportion of patients diagnosed with SUI at the 6-week postpartum visit post-implementation: Number of patients diagnosed with SUI/Number of 6-week postpartum visits. The number of patients diagnosed with SUI was determined by the presence of ICD code N39.3 (Stress incontinence [female] [male]). Again, the number of 6-week postpartum visits was determined by the presence of ICD code Z39.2 (Encounter for routine postpartum follow-up).

The DNP Project Leader coded the data and used a statistical analysis software program for data analysis. Data analysis of the descriptive statistics included the range, mean, standard deviation, and median. Since the DNP Project Leader expected the proportions screened and diagnosed to be higher in the post-implementation versus the pre-implementation time period, a one-sided Z-test to compare proportions between these two time periods was performed, assuming binomial approximation to the normal distribution. A P value < 0.05 was considered statistically significant. The statistician at the project site also ran the same analyses using a different statistical analysis software program to confirm the output.

Patient Protection/Approval Processes

In addition to collecting data anonymously, measures taken to protect patients during the implementation included securing data in a folder on a password-protected shared drive on the hospital's network, and deleting information once used. The project proposal was submitted to both the University of Maryland (UMD) Institutional Review Board (IRB) and the Department of Research Programs at the organization for Non-Human Subjects Research (NHSR) determination.

Results

The change in practice made by this QI project is that the Women's Health Clinic now has a standardized SUI screening program for the 6-week postpartum visit, including three critical elements: screening, diagnosis, and follow-up. Permanent changes to structures and processes include the updated Women's Health Clinic Postpartum Questionnaire with the QUID-Stress Scale printed in a bright yellow box, provider understanding of how to diagnose SUI and use the corresponding ICD code N39.3 (Stress incontinence [female] [male]) for documentation, and the new Postpartum Pelvic Floor Exercises Handout with follow-up plan. In addition,

ensuring that the patient has filled-out the QUID-Stress Scale and reported the score to the provider prior to the provider seeing the patient was added to the medical technician's checklist for each 6-week postpartum visit.

Descriptive statistics were calculated for the age of the sample of women (n=103) who were seen for a 6-week postpartum visit during the 10-week implementation period. The ages ranged from 20-44, with an average age of 32.2 (SD=5.6) and a median age of 32. Figure 1 provides a graphical summary of the patients' ages. During the 10-week pre-implementation period, there were 99 6-week postpartum visits, zero patients were screened for SUI, and one patient was diagnosed with SUI. During the 10-week implementation period, there were 103 6-week postpartum visits, 77 patients were screened for SUI, and 22 patients were diagnosed with SUI. Therefore, screening for SUI increased from 0% to 74.8%, and diagnosis of SUI increased from 1% to 21.4%. The results of the Z-test to compare sample proportions screened pre- and post-implementation were statistically significant and indicated rejecting the null hypothesis that the sample proportions were equal ($Z=10.9$, $P=<.0001$, one-tailed). The results of the Z-test to compare sample proportions diagnosed pre- and post-implementation were also statistically significant and indicated rejecting the null hypothesis that the sample proportions were equal ($Z=4.6$, $P=<.0001$, one-tailed). Figure 2 provides a graphical summary of these proportions.

There were several observed associations between contextual elements, such as evidence, teamwork, communication, and high staff turnover, and the interventions/positive outcomes of the project. The QUID-Stress Scale is an evidence-based tool that is valid and reliable; since the clinic has a strong culture of evidence-based practice, they were supportive of adopting the tool. CNMs and WHNPs see the majority of the postpartum patients and worked together during the implementation with the common goal of increasing screening and diagnosis of SUI; providers

who were more comfortable with postpartum coding and teaching pelvic floor contractions were observed assisting less comfortable providers. Communication could have been a challenge in this clinic due to staff working different shifts, attending frequent trainings, and tending to other clinic responsibilities; however, the staff has established many effective forms of communication to overcome this challenge, such as daily morning huddles, weekly meeting for each group of staff members, monthly clinic staff meetings, and frequent e-mail updates. Finally, there was high staff turnover and variation in how providers were initially taught to code for postpartum visits at previous places of employment; this impacted the outcomes since the data reports were pulled from ICD and CPT codes.

One unexpected benefit of this project included a new partnership between the Women's Health Clinic's prenatal class program and the pelvic floor physical therapists, both at the project site and at another local hospital. A second unexpected benefit is interest in implementing the project in the three satellite Women's Health Clinics associated with the project site, as well as the Family Health Clinic. Unintended problems included coding discrepancies among the providers. There were no unintended failures or costs associated with the intervention.

Discussion

This QI project provides initial support regarding the feasibility of implementing a screening process for SUI at the 6-week postpartum visit in a women's health clinic. Routine screening with the QUID-Stress Scale increased detection of SUI at the 6-week postpartum visit. The results agree with previous research indicating the effectiveness of routine screening in detecting patients with SUI; observed and anticipated outcomes were congruent.

Particular strengths of the project include the many staff members who facilitated the implementation of the project. First, the biggest facilitator was the support of the clinical site

representative in: 1) scheduling several training sessions with the staff, 2) proofreading and providing feedback on the materials created for this project, and 3) connecting the DNP Project Leader with clinic leadership to answer questions and address concerns. Second, an administrative RN in the clinic acted as the project assistant and was an extension of the DNP Project Leader when not at the clinic; the staff was aware that they could go to her with any questions. Finally, one of the WHNPs in the clinic created a new postpartum template to share with the other providers.

There were both limits to the generalizability of this work, as well as imprecision in methods and measurement. First, this DNP Project was intended to address the needs of postpartum patients in a specific treatment facility. The findings from the project are not generalizable to other similar health settings or populations because the plan was designed to: 1) address a gap in care identified by leaders in this specific clinic, and 2) use resources available for consultation and follow-up within this specific treatment facility. A second limitation was incorrect coding by the providers. During the second week of implementation, the implementation team discovered that some of the providers were using a code other than ICD code Z39.2 (Encounter for routine postpartum follow-up) as their primary code for postpartum visits. This was significant because the project relied on proper coding for the outcome data. To minimize this limitation, the outpatient coder was contacted for clarification, and proper coding was reviewed with the providers at the mid-implementation provider meeting. A third limitation was the lack of timely data migration into the data repository; according to an informatics specialist at the project site (personal communication, November 14, 2018), it takes an unspecified period of time (probably several weeks) for the data to populate from the outpatient coding system into a pool of data that is accessible to the informatics specialists. To adjust for

this limitation, the informatics specialist repeated the query again at a later date to give the data repository more time to populate accurate data. Finally, the DNP Project Leader originally intended on reporting mode of delivery (spontaneous vaginal delivery, operative vaginal delivery, or cesarean section) and SUI follow-up plans, but these were eliminated due to the inability to do chart reviews because of privacy restrictions.

Conclusions

The change in practice made by this QI project is that the Women's Health Clinic now has a standardized SUI screening program for the 6-week postpartum visit, including three critical elements: screening, diagnosis, and follow-up. Permanent changes to structures and processes include an updated Women's Health Clinic Postpartum Questionnaire with the QUID-Stress Scale printed in a bright yellow box, provider understanding of how to diagnose SUI and use the corresponding ICD code N39.3 (Stress incontinence [female] [male]) for documentation, and a new Postpartum Pelvic Floor Exercises Handout with follow-up plan. The new Women's Health Clinic Postpartum Questionnaire and the Postpartum Pelvic Floor Exercises Handout are now available on the shared drive at the project site. In addition, ensuring that the patient has filled-out the QUID-Stress Scale and reported the score to the provider prior to the provider seeing that patient was added to the medical technician's checklist for each 6-week postpartum visit.

This project should be sustained as implemented. The root cause of most of the barriers to implementation dealt with retrieving data as a student, and were unique to this practice site. There is potential for spread of the QUID-Stress Scale to screen postpartum women for SUI in other contexts; however, the follow-up plan would have to be amended in order to use resources available for consultation and follow-up at that particular site. There is substantial evidence

supporting screening other high-risk populations for SUI, such as women over the age of 40 and women with a high BMI, but future research is needed on screening postpartum women specifically. Additional trainings should be planned to include the three satellite Women's Health Clinics associated with the project site, as well as the Family Health Clinic. Finally, the QUID-Stress Scale should be integrated into the electronic health record for ease of documentation.

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Table 1

Evidence Review

Author, year	Study objective/intervention or exposures compared	Design	Sample (N)	Outcomes studied (how measured)	Results	Level and Quality Rating
Badejoko, Bola-Oyebamiji, Awowole, Salako, & Ogunniyi, 2016	To determine prevalence of UI and opportunistic screening in outpatient women in Nigeria	Cross-sectional study	1,250 women at a general outpatient clinic	Prevalence of physician asking about UI and of incontinent women who thought they should have been asked (Post-consultation interview) Prevalence and pattern of UI (QUID)	53 (4.2%) women had opportunistic screening by physician. 50 (76.9%) incontinent women thought they should have been asked about it. 65 (5.2%) women had UI (30 urge/23 stress/12 mixed)); 0 self-reported to their physician; 9 (13.8%) of the incontinent women were screened by their physician	4B
Bradley et al., 2010	To evaluate QUID validity and responsiveness when used as a clinical trial outcome measure.	Validation of QUID as an outcome measure for treatment studies of UI	444 women with stress and mixed UI	Presence and frequency of UI symptoms; quality of life (7-day bladder diary, Urinary Distress Inventory (UDI) and QUID)	For stress incontinence: QUID internal consistency= Cronbach's α 0.64 QUID correlated moderately with UDI and bladder diary QUID is short and valid; it may be used to determine UI type and symptom frequency in clinical trials.	4B
Bradley et al., 2005	To develop a questionnaire for UI diagnosis in women and to test its reliability and validity	Validation of QUID (Sample completed questionnaire at enrollment, 1 week later, and 9 months later. Screening tool diagnoses were	117 urogynecology outpatients with UI symptoms	Clinical diagnosis, internal consistency, test-retest reliability, sensitivity/ specificity (QUID vs incontinence specialists' clinical evaluations)	For stress incontinence: Accuracy= 0.81 Internal consistency= Cronbach's α 0.85 Test-retest reliability= 0.91 Sensitivity= 0.85 Specificity= 0.71	4A

		compared with "gold standard" clinical diagnoses)				
Duralde et al., 2016	To identify clinical and sociodemographic determinants of patient-provider discussion and treatment of incontinence among ethnically diverse, community-dwelling women.	Cohort study	969 women 40+ years-old reporting minimum of weekly incontinence	Frequency, severity, clinical type, sociodemographics (validated structured-item questionnaire including: whether or not women discussed SUI with provider, who initiated the discussion, how long they had experienced symptoms, types of providers involved, and primary reason for denying discussing their leakage) Clinical incontinence severity (Sandvik Severity Scale)	525 (54.7%) women with incontinence discussed incontinence with provider. 95% of these women initiated the incontinence discussion; 31 (3.3%) women reported provider-initiated discussion. Additional 45% of women with incontinence did not discuss symptoms with their provider; most common reasons: considered problem small or insufficiently bothersome, preferred to manage problem privately, believed they should just "put up with" incontinence, or viewed it as a normal problem with aging. Authors support systematic screening of women to overcome barriers to evaluation and treatment.	4B
Sampselle et al., 2000	To test the effectiveness of an evidence-based protocol for UI in increasing identification of women with the condition and improving their outcomes.	Prospective formative evaluation study	1,474 women in ambulatory care settings (outcomes tested in 132 cases)	Self-reported frequency, volume, and quality of life (evaluation questionnaire)	842 (57%) of patients were identified as incontinent with routine screening, versus population-based studies which report that 38-41% of incontinent women report their condition to their provider.	4B
Visser et al., 2012	To identify women who do not consult a professional for their incontinence symptoms, and to determine factors	Survey study	225 women 55+ years-old with UI	Help-seeking status and reasons for not seeking help from provider for UI (Questionnaire on help-seeking behavior was developed)	143 (64%) of women with UI were not registered by their primary care provider; younger age and lower levels of distress were significant predictors of not being known	4A

	related to not seeking help and reasons for not seeking help (Part of the URINO Project; objective is to investigate the effects of a standardized assessment and evidence-based treatment on UI in older women)	(Part of the URINO Project; randomized controlled trial)			Main reason for not seeking help: symptoms not perceived as being severe enough	
World Health Organization, 2013	To identify the content of postpartum maternal and newborn care	CPG	N/A	N/A	At each postpartum contact (after 24 hours postpartum), enquiries should be made regarding micturition and UI	1B
Yazdany, Wong, & Bhatia, 2011	To evaluate OB/GYN resident physician screening of UI	Part 1: Retrospective chart review Part 2: Prospective clinical trial	Part 1: 196 new patient charts Part 2: 190 randomized new patient charts (88 with reminder sticker in chart; 102 without reminder sticker in chart)	Documentation of UI	Part 1: OB/GYN residents documented incontinence symptoms in 8 patients (4%) Part 2: OB/GYN residents documented screening for incontinence in 30 patient charts with reminder sticker (34.1%) versus 4 patient charts without sticker (3.9%)	2B

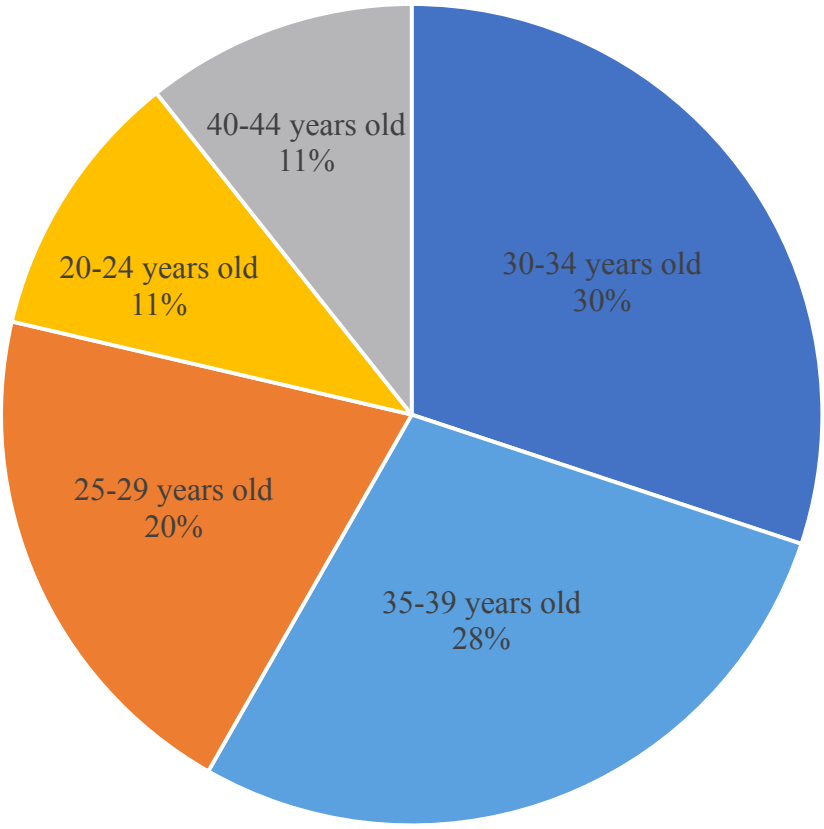


Figure 1. Pie chart showing the age ranges of patients (n=103) being seen in the Women's Health Clinic for their 6-week postpartum visit during the 10-week implementation period.

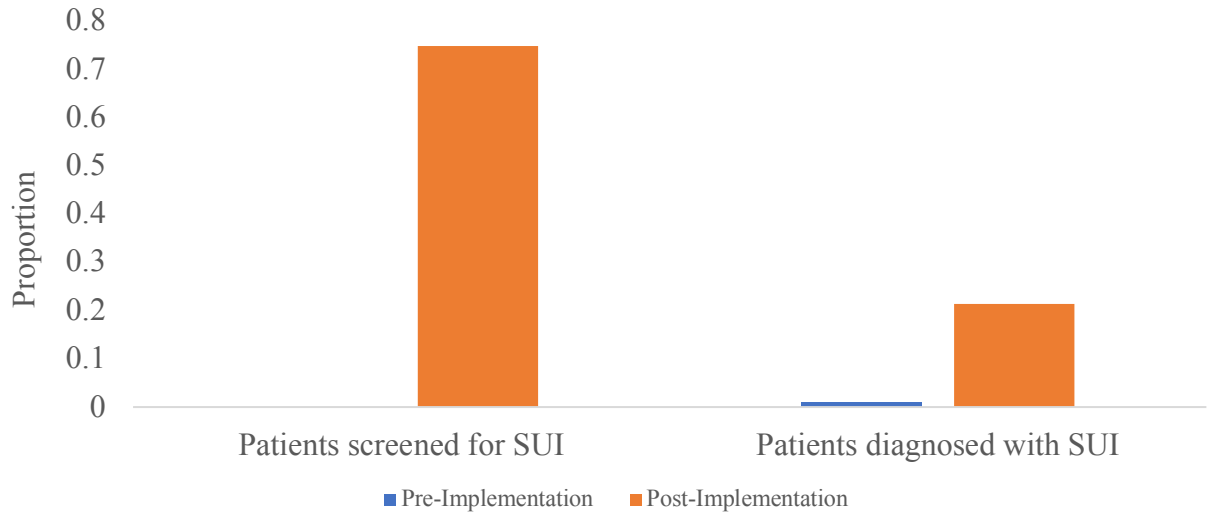


Figure 2. Bar chart illustrating the proportion of patients screened for and diagnosed with SUI at their 6-week postpartum visit pre- and post-implementation.

Appendix A

The QUID-Stress Scale

	Scoring					
Question	None of the time: score 0	Rarely: score 1	Once in a while: score 2	Often: score 3	Most of the time: score 4	All of the time: score 5
Do you leak urine (even small drops), wet yourself, or wet your pads or undergarments . . .						
1. When you cough or sneeze?	☐	☐	☐	☐	☐	☐
2. When you bend down or lift something up?	☐	☐	☐	☐	☐	☐
3. When you walk quickly, jog, or exercise?	☐	☐	☐	☐	☐	☐

Note. Adapted from Bradley et al. (2005); permission to use granted by author and available on request.

Appendix B

Adaptation of Champion's Health Belief Model Scale Items for Clinic Staff

Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
(SUSCEPTIBILITY)	☐	☐	☐	☐	☐
1. It is extremely likely that a postpartum patient will have SUI.	☐	☐	☐	☐	☐
2. Postpartum women are more likely than the average woman to have SUI.	☐	☐	☐	☐	☐
(SERIOUSNESS)	☐	☐	☐	☐	☐
1. The thought of SUI scares postpartum patients.	☐	☐	☐	☐	☐
2. Problems postpartum patients would experience with SUI would last a long time.	☐	☐	☐	☐	☐
3. SUI threatens relationships with boyfriends/husbands/partners, friends, and coworkers.	☐	☐	☐	☐	☐
4. If a postpartum patient had SUI, her life would change.	☐	☐	☐	☐	☐
(BENEFITS)	☐	☐	☐	☐	☐
Screening for SUI at the postpartum visit will . . .	☐	☐	☐	☐	☐
1. Help detect postpartum urinary issues early	☐	☐	☐	☐	☐
2. Decrease the chances of more costly and invasive treatments for SUI later on	☐	☐	☐	☐	☐
(BARRIERS)	☐	☐	☐	☐	☐
Routinely screening for SUI at the 6-week postpartum visit would . . .	☐	☐	☐	☐	☐
1. Make patients worry more about SUI	☐	☐	☐	☐	☐

2. Be embarrassing	□	□	□	□	□
3. Take too much time	□	□	□	□	□
4. Cost too much money	□	□	□	□	□

Note. Adapted from Champion (1999); permission to use granted by author and available on request.

Appendix C

Women's Health Clinic Postpartum Questionnaire

Women's Health Clinic Postpartum Questionnaire

Patient's Name: _____ DOB: _____ Contact #: _____

Date of Delivery: _____ Gestational Age at Delivery: _____ Infant Weight at Birth: _____ Circle: Male/Female

Circle: Vaginal Delivery/C-section Indications for C-section: _____

Complications during Pregnancy (Hypertension, GDM, etc.): _____

Complications during Delivery (Lacerations, Episiotomy, Vacuum, Forceps, etc.): _____

Circle: Breastfeeding/Pumping/Formula feeding Any concerns with infant feeding? _____

Are you currently experiencing any pain? Yes / No Where? _____ Pain Scale: (1=very mild, 10=severe): _____

Birth Control/Family Planning: _____ Date of Last Sexual Intercourse: _____ Return of Menses: _____

Did you Receive: Flu Shot ____ T-DaP ____ Gardasil ____ History of Depression: _____

# of Pregnancies: _____ # of Deliveries: _____ # of Living Children: _____

When was your last PAP smear? _____ History of abnormal PAPs: Yes / No When: _____

Colposcopy? Yes / No When: _____ When was your last mammogram? _____

Do you smoke? Yes / No How much: _____ Are you interested in quitting? Yes / No

Do you drink? Yes / No How much: _____ Do you feel safe in your current environment? Yes / No

Current Medications: _____ Allergies: _____

Do you leak urine (even small drops, wet yourself, or wet your pads or undergarments…	(0) None of the time	(1) Rarely	(2) Once in a while	(3) Often	(4) Most of the time	(5) All of the time
1. When you cough or sneeze?	☐	☐	☐	☐	☐	☐
2. When you bend down or lift something up?	☐	☐	☐	☐	☐	☐
3. When you walk quickly, jog, or exercise?	☐	☐	☐	☐	☐	☐

(Total score ≥ 4 is a positive screen for stress urinary incontinence)

Have you ever experienced?

_____ DES Exposure

_____ Sexually Transmitted Infection

Type: _____

_____ Bladder or Bowel Problems

_____ Sexual Abuse

_____ Unexplained Weight Change

_____ Change in your Health Status

Do you or anyone in your family have/had?

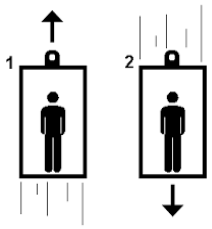
SELF	FAMILY	
_____	_____	High Blood Pressure
_____	_____	Heart Disease
_____	_____	High Cholesterol
_____	_____	Thyroid Problems
_____	_____	Diabetes/Gestational Diabetes
_____	_____	Blood Clotting Issues
_____	_____	Stroke
_____	_____	Hepatitis
_____	_____	Seizures
_____	_____	Osteoporosis
_____	_____	Cancer: Type: _____

Appendix D

Postpartum Pelvic Floor Exercises Handout

Postpartum Pelvic Floor Exercises:
"Elevators" and "Reverse Elevators"

- Seated or lying down
- 5 sets, 2 times a day
- Imagine 3 floors- 1st floor is small squeeze for 3 seconds
  2nd floor is medium squeeze for 3 seconds
  3rd floor is strong squeeze for 3 seconds
  ----------REVERSE
  2nd floor is medium squeeze for 3 seconds
  1st floor is small squeeze for 3 seconds
  (Then reverse to complete relaxation. This is one set.)



***While performing these exercises, it is important to remember to just use your pelvic floor muscles and to breathe from your diaphragm. Do **not** contract your buttocks or thigh muscles.

IF you are still experiencing stress urinary incontinence after 6 weeks of these exercises (at 3 months postpartum), please call the Women's Health Clinic triage line to request a referral to pelvic floor physical therapy: XXX-XXX-XXXX, option X.

Postpartum Pelvic Floor Exercises:
"Elevators" and "Reverse Elevators"

- Seated or lying down
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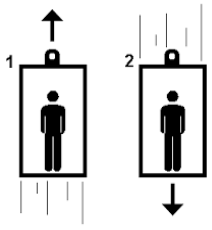

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Appendix E

Laminated Business Card Size Provider Cheat Sheets

PP Stress Urinary Incontinence Screening Coding

Routine Postpartum Follow-up:

ICD code: Z39.2

CPT code: 0503F

*In addition, add CPT code **96160***

[Prev Medicine Admin of Health Risk Questionnaire Patient-Focused]

Postpartum Patients who Score ≥ 4 for Stress Incontinence:

In addition to ICD code Z39.2,

*add ICD code **N39.3*** **[Stress incontinence (female)(male)]**

SCREEN ➢ IDENTIFY ➢ TEACH PELVIC FLOOR EXERCISES ➢ CODE ➢ DOCUMENT FOLLOW-UP PLAN