Standardized Bowel and Bladder Training Program and Learning Resources for Stroke Nurses at Western Health

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A Practicum Report submitted

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Abstract

Background: Incontinence is a common adverse effect of stroke, affecting 40-60% of stroke patients. Incontinence is known to decrease skin integrity, increase the incidence of falls, and decrease perceptions of quality of life. The implementation of bowel and bladder management strategies has been proven to improve patient outcomes in stroke care. Ensuring nursing staff receive the proper education prior to the implementation of these strategies increases the probability of proper implementation and positive patient outcomes.

Purpose: To create learning resources for registered nurses, emphasizing the importance of incontinence care in stroke patients and providing introductions to the different types of bowel and bladder management strategies and the steps for implementation for each.

Methods: An extensive literature review was first conducted to identify different types of bowel and bladder management strategies, potential barriers to implementation, and theories for delivery of adult learning experiences. Consultations with key stakeholders, the manager of the stroke unit at Western Health and five Registered Nurses were completed. Finally, one other health authority in Newfoundland and Labrador was consulted regarding current bowel and bladder management strategy practices,.

Results: Learning resources including an inservice, reference guide, and flowchart were created based on the information collected from the above methods.

Conclusion: The learning resources created as a result of this practicum project will aid in the education of registered nurses and assist with the proposed implementation of

bowel and bladder management strategies at Western Health to help improve patient outcomes in stroke care.

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Table of Contents

Introduction

Incontinence is a common adverse effect of stroke, affecting between 40-60% of all stroke patients (Harari, Norton, Lockwood, & Swift, 2004; Woodward, 2014). The Heart and Stroke Foundation of Canada mandates that all dedicated stroke units should have guidelines and/or procedures in place for the provision of standardized incontinence care for stroke patients (Casaubon et al., 2016). In particular, incontinence care should utilize bowel and bladder management strategies to lessen, if not eliminate, fecal and urinary incontinence. Although incontinence is often an overwhelming adverse effect on its own, it can also lead to decreased skin integrity, increased incidence of falls, and decreased perceptions of quality of life (Thomas et al., 2011). These additional adverse effects can then lead to delayed discharge from hospital as well as a greater occurrence of re-admission post discharge. Therefore, it is imperative that incontinence care become an integral part of stroke care. Registered Nurses (RNs) are one of the only members of the health care team that are involved in patient care 24 hours a day. Therefore, RNs are an essential part of the implementation and ongoing use of bowel and bladder management strategies for stroke patients.

Prior to the beginning of the first practicum course, an informal needs assessment was conducted with the manager of Western Memorial Regional Hospital's (WMRH) stroke unit. Through this conversation, it was identified that the unit is currently lacking in a standardized bowel and bladder management program for stroke patients. This discussion led to the proposed idea and eventual development of a practicum project that would help Western Health reach this standard in stroke care. Not only was a

standardized program necessary, but education for RNs prior to the implementation of the strategies was of utmost importance.

This final report provides an overall summary of the development and design of the practicum project. The overall goal of the practicum project was to develop an educational resource for RNs to aid in the implementation of standardized bowel and bladder management strategies on the stroke unit at WMRH. First, the methods used in the development of the practicum project will be discussed, including a literature review summary, consultation summary, and environmental scan summary. Second, the overall development process and key features of the resource will be discussed. The application of advanced nursing practice competencies will then be applied to the various stages of the resource development. Finally, the next steps of the project, including feedback from key stakeholders and plans for implementation and evaluation will be discussed.

Overview of Methods

Various methods were utilized throughout the different stages of this practicum project. First, a thorough literature review was completed. This literature review included a discussion of different incontinence strategies, designing and evaluating an educational resource, and theories that could aid in the development of the practicum project. Second, consultations were completed with several key stakeholders including management and RNs working on the stroke unit at WMRH. Third, an environmental scan was completed to determine what strategies other health authorities within the province of Newfoundland and Labrador were utilizing to improve incontinence management for stroke patients. Based on the results of the literature review, consultations, and environmental scan,

learning resources were developed. The above methods will be discussed in further detail throughout the subsequent sections of the final report.

Literature Review

The literature review was completed using the search databases of CINHL, PubMed, and Cochrane library. As well, the reference lists of selected articles were reviewed to locate relevant literature not found in previous searches, and Google Scholar was utilized to find grey literature. Search terms used to locate the articles included stroke, incontinence, bladder training, bowel training, toileting, and rehabilitation. The majority of the research articles were published in the last 10 years, but three articles were published in the 1990s. Most articles found were related to bladder incontinence and stroke. There were very few articles available discussing bowel incontinence. Of the 20 articles chosen for the literature review, three of these articles were not research studies, but rather informational articles. It was decided that these articles would be included in the review because of the information in them, especially the extensive explanations of the possible therapeutic bowel and bladder regimens. Four articles chosen evaluated existing programs, five were randomized control trials, four were systematic reviews, and one was a cross-sectional design. The following sections provide a brief synthesis of the literature review, including bladder incontinence, bowel incontinence and constipation, barriers surrounding implementation, designing and evaluating an education program for nurses, theory related to the development of the resource, and limitations of the literature review. The literature review in its entirety is provided in Appendix A.

Bladder Incontinence

Although any type of urinary leakage that occurs from the bladder is referred to as incontinence, there are different types of incontinence, each with its own etiology. The literature review revealed four main types of bladder management strategies - bladder training, prompted voiding, habit retraining, and timed voiding. Different types of incontinence respond differently to different types of bladder training strategies. Therefore, it is important for the RN to establish what type of incontinence the patient is experiencing, prior to choosing the appropriate bladder management strategy for that particular patient (Herr-Wilbert, Imhof, Hund-Georgiadis, & Wilbert, 2010). An overarching theme from the literature review was that bladder training and prompted voiding are the most commonly used and successful bladder management strategies for stroke patients. This finding led to the decision to only include these two strategies in the educational resource.

Bladder training was the most common type of bladder management strategy. This type of strategy is often used in conjunction with pelvic floor muscle training, or "kegel exercises". (Woodward, 2013). Bladder training is used with patients who are not confused, are able to ambulate on their own (or with minimal assistance), and are willing to play in a significant role in their incontinence care and recovery. Bladder training is used with any type of urinary incontinence, but it is recommended to incorporate pelvic floor muscle training into this strategy when stress or mixed incontinence is occurring (Woodward, 2013).

Prompted voiding, the second management strategy chosen for inclusion in the resource, is used with patients who are confused, are not able to ambulate on their own, or are uncertain about having a significant role in their incontinence care and recovery. Prompted voiding can be used for any type of incontinence. Several of the studies included in the literature review stated that it was common for nursing staff to implement prompted voiding on the majority of patients, as it was viewed as the "best" strategy, even when bladder training was warranted. Although it was not clear as to why this occurred, it may be related to the increased responsibility placed on the patient during implementation of bladder training, and the potential for the patient to become overwhelmed because of this increased responsibility (French et al., 2016).

Bowel Incontinence and Constipation

Bowel management involves the utilization of bowel incontinence and constipation strategies. Like urinary incontinence, constipation and bowel incontinence can contribute to many other adverse effects post stroke. These include, but are not limited to, discomfort, pain, and decreased perceptions of quality of life (Harari et al., 2004; Lim & Childs, 2013). The majority of the strategies suggested for bowel management were lifestyle changes. Increasing dietary fiber, water intake, and decreasing caffeinated beverages were all strategies suggested for constipation management (Venn, Taft, & Carpentier, 1992). Dietary and fluid intake changes were also suggestions for bowel incontinence (Norton, Whitehead, Bliss, Harari, & Lang, 2010). A strategy that was common to both incontinence and constipation was establishing normal bowel routines and the implementation of regular toileting habits (Harari et al., 2004; Venn et

al., 1992). The last strategy suggested for bowel management was consultation with other members of the interdisciplinary team, especially physicians. Physicians, along with registered nurses, can collaborate to complete medication reviews to determine if any current medications are contributing to the patient's bowel issues, and physicians can prescribe new medications, such as stool softeners, to help manage bowel issues (Gallagher & Mahoney, 2009).

Barriers Surrounding Implementation of the Resource

The literature review provided a glimpse of potential issues and barriers that may arise during the proposed implementation phase of the resource. Knowing these issues prior to the development of the resource was important because it provided an opportunity to potentially avoid these issues with adequate design and implementation plans. Issues identified in the literature were a lack in formal policy surrounding bowel and bladder management strategies within the organization, incontinence care being seen as a low priority for stroke care, increased workload and time management issues for RNs, and not providing nursing staff with proper education prior to strategy implementation (Fisher, 2014; French et al., 2016; Jordan et al., 2011; & Thomas et al., 2014). Therefore, it was important that the resource provided different forms of education to meet different learning needs, as well as emphasize the importance of making incontinence care a priority in stroke care.

Designing and Evaluating an Education Program for Nurses

To aid in the development of the resource, literature was reviewed focusing on presenting information in a small-group setting, the use of case studies, and the use of evaluation methods and materials. The literature provided insight into the pros and cons of the various delivery methods and supported the overall decision of how to design and develop the educational resource. Based on the literature surrounding small-group settings, the format of an inservice was chosen for the initial delivery of the material. Case studies were incorporated throughout the inservice as a method of applying learned concepts and evaluating the participants learning. Also, the literature review presented an opportunity to explore different forms of evaluation, both of the resource itself and of the participant's learning. Summative evaluation was chosen as the best method for evaluating the overall resource, and formative evaluation was utilized for evaluating the participants learning throughout the inservice. Detailed descriptions of the evaluation methods will be discussed in a later section.

Theory Related to the Development of the Resource

Two theories were chosen to guide the development of the project. The first was the Adult Learning Theory, which emphasizes the importance of understanding what format of information sharing adult learners prefer, the previous learning experiences of the learner, and ensuring that the learner understands the importance of the knowledge being presented to them (Knowles, Holton, & Swanson, 2011).The second theory incorporated into the development process was the Normalization Process Theory. This sociology theory examines the reasons behind successful (or unsuccessful) incorporation

of new practices into everyday routines. The theory stipulates that if participants are cognitively enrolled in the new practice, and are understanding of the reason for change, the new practice will be implemented successfully and maintained (May & Finch, 2009). Both of these theories are connected through their concepts and principles. The use of both theories in the development process allowed for a more comprehensive and thorough design for the educational resource. Within the various components of the resource, the learning needs and styles of the targeted audience were placed at the forefront, with a noticeable emphasis on the importance of the material being presented, and how it will benefit both patient and nursing staff once implemented.

Limitations of the Literature

One of the major limitations of the available literature was the lack of recent literature available on bowel and bladder management strategies, as well as a lack of focus on the use of these strategies with only stroke patients. Although stroke patients were often mentioned in the study inclusion criteria, very few studies were dedicated to solely studying the effects of bowel and bladder management strategies on stroke patients. Also, the follow-up in the majority of the studies did not exceed one year post intervention. This lack of information could hinder the process of developing long-term evaluation and follow-up plans, as well as leave a lot of uncertainty for the longevity of program use and implementation.

Consultations and Environmental Scan

In order for the learning resource to become successfully developed, accepted, and integrated in to practice, consultations with key stakeholders had to occur early in the planning stages of the project. This decision incorporated concepts and principles of the adult learning theory and normalization process theory, as involving RNs in the early stages may increase their desire to help make a new practice successful in the workplace. As per the health research ethics authority screening tool, ethical approval was not required for the completion of the consultations or the environmental scan. The following section compiles a summary of the results of the consultations and environmental scan. The report in its entirety can be found in Appendix B.

Consultations

To recruit nursing staff for the consultations, a mass email was sent to 20 stroke nurses currently working at WMRH. Five RNs and one manager agreed to participate in the consultation process and informed consent was obtained from each participant. Interviews consisted of open and closed ended questions, were audio recorded, and then transcribed verbatim. Themes were then identified through content analysis.

The consultation process resulted in information that aided the design of the resource as well as the proposed plan for implementation and evaluation. Several barriers were identified by both management and nursing staff, including financial barriers, uptake by nursing staff, and perceived increase workload. Both groups felt that the

provision of adequate education prior to the implementation of the strategies would offset the majority of these barriers.

The consultation process also revealed nursing staffs preferred methods of learning. This information ultimately determined the type of educational resource that would be developed. The original plan for the learning resource was to create an e-learning module. As discovered from the consultations, RNs did not prefer e-learning as a method of information delivery, but rather opted for inservices, lunch and learns, flowcharts, and brochures. This information resulted in changing the original plan for the resource. Based on the results, it was decided that an inservice would be created for staff who had stroke education in the past, as well as incorporating the inservice into a two-day stroke education course currently being offered by Western Health for new hires. Based on the feedback from nursing staff and management, a reference guide and flowchart were also created to be placed on the nursing unit for quick reference.

Environmental Scan

The environmental scan yielded few results. The original plan for the environmental scan was to connect with three other health authorities in the province of Newfoundland and Labrador to examine their current use of bowel and bladder management strategies for stroke patients and any issues that they may have encountered with the design, implementation, and evaluation process. After multiple attempts, contact was made with only one other health authority in the province. This particular health institution did not have any policies or guidelines in place for incontinence care for stroke patients, mainly because they did not have dedicated stroke unit. Therefore, there were no

strategies or educational materials available for comparison and no information to enhance the implementation and evaluation processes.

Standardized Bowel and Bladder Training Program and Learning Resource for Stroke Nurses at Western Health

A three part learning resource was created that includes an inservice, reference guide, and flowchart. Each of these components can be found in Appendix C, D, and E, respectively. The following section will provide a brief description of the key features of each component and its subsequent development process.

Inservice

As previously stated, the decision to include an inservice stemmed from the results of the consultations with key stakeholders. This method of delivery was also supported by the literature review and research surrounding delivering information through a small group setting (Kelly, Cunningham, McCalister, Cassidy, & MacVicar, 2007). The inservice will target both RNs who have previously completed the stroke education course, as well as new RNs completing the course, as it will be proposed that the inservice be integrated into the stroke course already offered by Western Health. The inservice consists of a PowerPoint presentation which includes information on the importance of incontinence care as well as providing introductions to two bladder management strategies, bladder training with or without pelvic floor muscle training and prompted voiding, and different bowel management strategies and tips. Throughout the inservice, there are multiple opportunities for interaction and evaluation amongst

participants. The activity included is focused on identifying type of incontinence. There are also two case studies included, one for bladder management strategies and one for bowel management strategies. These case studies present a patient scenario through a health history, and prompts the learner to not only identify incontinence type and which strategy to implement, but also to utilize critical thinking in identifying additional health history questions that should be asked to the patient. As these activities and case studies are provided, participants will be encouraged to interact, sharing answers and ideas. This discussion not only allows for information sharing and interaction, but also serves as a form of evaluation of the participant's learning.

Reference Guide

The reference guide was created upon recommendation of the manager of the unit. The reference guide provides nursing staff with a detailed synthesis of all the various bowel and bladder management strategies, the steps for choosing the correct strategy for each patient, and guidelines for implementation of the strategies. Samples of bladder and bowel diaries are included in an appendix, as these are required for establishing the patient's normal bowel and bladder routines prior to implementing any type of incontinence strategy. Also included is a list of websites that can be used for both nurse and patient teaching.

The reference guide was created to be a convenient, easy-to-use resource that could be readily accessible at any time on the nursing unit. Unfortunately, there may be gaps in between implementing different strategies on patients (for example, several patients in a row may require the same strategy). This can lead to uncertainty when

having to implement a different strategy after some time. The reference guide will help to relieve this uncertainty, as it provides a detailed description of each strategy with step-by-step guidelines for assessment, decision-making, and implementation. Along with these features, the reference guide can be referred to at any time, allowing the user to refresh his/her learning at his/her own pace. This aspect of the resource is consistent with principles of the Adult Learning Theory, which implies that adult learners need to have accessibility and flexibility within the learning process (Knowles et al., 2011).

Flowchart

The third component of the learning resource is a flowchart that can be placed on the nursing unit. This flowchart aids in a quick decision making process for choosing the most suitable bladder management strategy for each client. One of the potential barriers for implementation identified both in the literature review and consultations was time management, specifically, being able to incorporate bowel and bladder management strategies into the everyday routine of the unit. With several different strategies for bladder management, and different patient criteria for each strategy, it may be daunting to choose the correct strategy. Although each strategy and its subsequent criteria are included in the reference guide, it may also be time consuming to read through the entire guide to find which strategy is needed with each new patient. Therefore, the flowchart provides a quick option to choose the best strategy, and then, if the nurse is familiar with that strategy, implementation can begin. If not, the reference guide can be utilized to review the strategy prior to implementation.

Advanced Nursing Practice Competencies

The completion of a graduate nursing program provides RNs with a specialized skill set that can allow them to become experts in their respective fields of interest. The Canadian Nurses Association (2008) identifies four competencies for advanced nursing practice. These standards include clinical competencies, research competencies, leadership competencies, and consultation and collaboration competencies. While a new advanced practice nurse (APN) may not be considered an expert in all of these competencies, different aspects of the graduate program provides learning opportunities to develop and grow in each of the competencies. Personally, I feel that the completion of the practicum project has allowed me to demonstrate aspects of all of the above competencies.

The demonstration of clinical competencies requires the APN to work with other members of the interdisciplinary team to provide holistic, integrative, and professional nursing care (CNA, 2008). One way that an APN can demonstrate this competency is to "plan, initiate, coordinate, and conduct educational programs based on needs, priorities, and organizational resources" (CNA, 2008, p.23). This practicum project has provided me with the opportunity to create a learning resource that has the potential to improve overall patient outcomes in stroke care at Western Health. This learning resource was created based on an identified need through collaboration with other members of the interdisciplinary team, including registered nurses and management. Developing this resource also helped to increase my own clinical competence with stroke care,

particularly the importance of incontinence care, and how to successfully develop and plan for integration of nursing educational tools.

The demonstration of research competencies occurs when an APN is able to appropriately generate, analyze, and utilize research findings (CNA, 2008). This is accomplished through identifying needs for improvement in patient care through literature reviews, as well as being able to "critique, interpret, apply, and disseminate evidence-based findings" (CNA, 2008, p.24). Prior to developing the learning resource, an extensive literature review was completed to analyze current research for bowel and bladder management strategies. The ability to critique this literature utilizing the PHAC toolkit (2014) and create an educational resource as a result of the research findings demonstrates advancement in meeting this particular competency.

To demonstrate leadership, APNs are required to be "agents of change, consistently seeking effective new ways to practice, to improve the delivery of care" (CNA, 2008, p. 24). The motivation for this project was to create a better standard of care for incontinence in stroke patients, and through proper education, encourage other RNs to want to implement the same changes. Being a leader for the change process involves promoting the change and the benefits that it will provide to not only patients but also nursing staff. By providing appropriate education through the use of the developed resource, RNs will receive an opportunity to understand the need for the change and become invested in the change process. This practicum project has allowed me to develop this educational resource, emphasizing the importance of implementing this change in the stroke unit. Regardless of where my future career as an APN leads me, I truly hope to

maintain a leadership role in the implementation and evaluation of this resource and the subsequent changes it will make to stroke care at WMRH.

Although consultation and collaboration is a part of everyday nursing practice, the ability to consult and collaborate with many members of the interdisciplinary team not only locally, but provincially, nationally, and even internationally is a characteristic possessed by those in an APN role (CNA, 2008). A major step in the development of this practicum project was consulting with registered nurses and management to understand the learning needs of RNs, as well as to discover any potential barriers to the implementation of the project. I also attempted to consult nurse managers provincially through my environmental scan. Although this yielded few results, I recognized and understood the need to consult and collaborate outside of my institution wherever possible, as outside experiences can definitely enhance the outcome of any project. Once the resource was created, it was sent to the nurse manager and educator for the stroke unit at WMRH. As both of these stroke team members are actively involved in the provision of stroke education to RNs, collaboration with them will be vital to the overall success of the implementation of the educational resource.

Next Steps

This practicum project provided the platform to develop an educational resource for RNs. Prior to its integration into everyday nursing practice, several other steps must occur. These steps include approval, implementation, and evaluation. Plans for these steps are outlined in the following section.

Copies of the resource have been sent to both the unit manager of 3B and the unit nurse educator for feedback. This feedback will be vital to the approval process, as it will provide me with suggestions for implementation and how to make this project successful on the unit. Any suggestions for change or improvement of the resource will be taken into consideration prior to implementation.

Once the feedback has been received, the next step will be to present the educational materials and strategies to the entire stroke care interdisciplinary team. This presentation will highlight the standards of care mandated by the Heart and Stroke Foundation, why incontinence management is important, and how these strategies will ultimately benefit patients, staff working on the unit, and the organization as whole. During this presentation, questions will be answered about how to offset identified and potential barriers, as well as how these strategies can be easily incorporated into everyday nursing routines. If the project is approved by the interdisciplinary stroke team, the implementation process can begin.

The first step of implementation for this project is to ensure proper education of all RNs on the stroke unit. The RNs on the unit work different shifts, so several different times and dates for the inservice will have to be provided in order to target all the RNs. To target new RNs on the stroke unit, confirmation that the inservice will become a part of the two-day stroke course offered once a year by Western Health will have to be obtained. During the inservice, the participants will also be introduced to the reference guide and flowchart to be familiarized with its purpose and use. Once all of the nursing staff currently working on the stroke unit have been provided with the education, bowel

and bladder management strategies for stroke patients can be implementation. This wait period will ensure that the strategies are being used appropriately and properly, so that both patients and nursing staff alike are receiving the maximum benefits from the implementation of the strategies. It will also be recommended that there should be an "expert user" (such as the unit nurse educator) of the strategies available during the first several weeks of the implementation process to assist nursing staff with the transition and answer any questions they may have.

Evaluation of this project will have to occur in several stages. The literature review revealed that although it is important to evaluate participant's learning, it is also important to evaluate the resource itself, for future use and revisions (Scheckel, 2016). First, there will need to be an evaluation of the participant's learning. This will be accomplished through discussion of case studies and activities throughout the inservice, as well as a post-test to be administered at the end of the inservice. The case studies, activities, and post-test can be found with the resource in Appendix C.

The second stage of evaluation will be of the resource itself. At the end of the inservice session, participants will be invited to complete a feedback form. This feedback form will evaluate the material presented, activities included, and presenter's knowledge of bowel and bladder management strategies. It will also provide a section for participants to offer any additional feedback or suggestions for change or improvement. This feedback will be important in improving the resources, especially if it is provided each year during the stroke course for new stroke nurses.

The final step of evaluation will be recommended to occur six and 12 months post-implementation. During this stage of evaluation, the implementation process will be evaluated, for both patient outcomes and RN satisfaction. To evaluate patient outcomes, it will be recommended that chart reviews occur to discover how many patients were incontinent, which of these patients received bowel and bladder management strategies, and the incidence of incontinence post-intervention. Not only will this evaluation detect the changes in incontinence rate, but it can also review the frequency of strategy implementation and use. During this time, it will also be important to evaluate RN satisfaction with the change in practice and to determine if there are any major issues or changes that need to occur for the new practice to continue successfully. If there are major issues or concerns, the educational resource may have to be re-visited and modified to ensure RNs are receiving the best preparation possible prior to the implementation of bowel and bladder management strategies.

Conclusion

This practicum project included the development of an educational resource for RNs outlining bowel and bladder management strategies for stroke patients at WMRH. The completion of this resource required an extensive literature review, consultations with key stakeholders, and an environmental scan. The development of this project did not occur without challenges and limitations, which in the end, strengthened the overall design and development of the final project. The final product consists of an inservice with evaluation components, a reference guide, and a flowchart. Completing this practicum project also provided me with opportunity to demonstrate advanced practice

nursing competencies, and to develop and grow as an APN. With the significant impact incontinence can have on the overall recovery and well-being of stroke patients, it is hoped that the implementation of this education and subsequent strategies for incontinence will improve the caliber of stroke care currently offered at WMRH.

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Appendix A

Literature Review

Standardized Bowel and Bladder Training Program and Learning Resource for Stroke Nurses at Western Health:

Literature Review

Gina Billard

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Abstract

Incontinence post-stroke is very common, affecting over 50% of stroke survivors. Although its management is often overlooked in favour of more acute problems, with early intervention, incontinence can be quite manageable and possibly eliminated. This paper presents a literature review of current incontinence programs including, bladder training, prompted voiding, habit retraining, timed voiding, constipation management, and fecal incontinence strategies. Although some of the management strategies are more effective if the patient is not cognitively impaired, all strategies proved to have value and contributed to the improvement of incontinence management. Recommendations for practice include more nursing education, implementing best practice guidelines, ensuring early assessment and intervention, as well as a recommendation for more current research studies to occur, especially concerning bowel management strategies as the current literature is lacking in this area. The literature review will provide a basis for development and design of a practicum project. The main recommendation that will be utilized from this paper are the need for increase in nursing intervention and implementation of best practice guidelines.

Table of Contents

Stroke is one of the leading causes of illness, disability, and death in Canada (Public Health Agency of Canada (PHAC), 2016). Each year, more than 300,000 Canadians are adversely affected by stroke, affecting their ability to complete activities of daily living and their overall quality of life (PHAC, 2016). Post-stroke, patients can experience aphasia, partial or total paralysis of one side of the body, memory loss, depression, problems with bladder control (retention or incontinence), bowel control (constipation or incontinence), pain, and difficultly with emotional control. Recovery and discharge from hospital can be delayed because of these adverse effects, and in the worst case scenario, patients may have to be admitted to a long-term care facility because of the inability to manage these adverse effects.

With rehabilitation, many of these side effects can be lessened, become manageable, or may even be eliminated. For example, speech therapists can aid in recovery from aphasia and physiotherapists and occupational therapists can help a patient gain back loss of movement and learn to adapt to everyday situations, physically and emotionally. Issues with bladder and bowel control, although often overlooked, can also be managed and eliminated post-stroke, especially with the help of nursing interventions. For some patients, incontinence could essentially mean the difference between being discharged to their own home or being transferred to a long term care facility. Therefore, it is imperative that incontinence is addressed and managed in acute stroke patients. Lack of standard policy and procedure, training, and nursing education can all contribute to the under-identification and treatment of incontinence (Jordan et al., 2011). It is therefore of

utmost importance to provide nurses with the proper education, training, and policy to be able to recognize and appropriately manage incontinence in stroke patients.

The purpose of this paper is to provide a critical analysis of available literature to aid in the design of a program. The paper will provide a background of the topic of interest, discuss the incidence and prevalence of incontinence in stroke, theories related to the development and delivery of an education program aimed towards registered nurses, interventions to manage urinary and bowel incontinence, training programs and resources for registered nurses, and integration of theory into the training and management of incontinence. As well, literature summary tables of the research studies will be provided in Appendix A.

Search Methodology

The literature review for this paper was completed using the search databases of CINHL, PubMed, and Cochrane library. As well, the references lists of selected articles were reviewed to locate relevant literature not found in previous searches, and Google Scholar was utilized to find grey literature. Search terms used to locate the articles included stroke, incontinence, bladder training, bowel training, toileting, and rehabilitation. The majority of the research articles were published in the last 10 years, but articles published in the 1980s and 1990s have also been included. Most articles found were related to bladder incontinence and stroke. As well, articles related to the design and evaluation of education programs have been included. There were very few articles available discussing bowel incontinence. Of the 20 articles chosen for the literature review, three of these articles were not research studies, but rather informational

articles. It was decided that these articles would be included in the review because of the information in them, especially the extensive explanations of the possible therapeutic bowel and bladder regimens. Four articles chosen evaluated existing programs, five were randomized control trials, one was a cross-sectional design, and four were systematic reviews. To critique the relevant articles, criteria from the PHAC Toolkit was utilized. The literature summary tables include the publication year, author, and title of the article, as well as its design and methodology. As well, information about the sample/groups, key results and findings, the strengths and limitations of the study designs, and a rating based on the information gathered.

Background

A stroke occurs when blood flow to the brain is interrupted, either by a clot (ischemic stroke) or a bleed caused by the rupture or break of a blood vessel (hemorrhagic) (PHAC, 2016). The specific part of the brain damaged as well as the extent of the damage determines the effects of the stroke. Therefore, not all adverse effects of stroke will be experienced by every stroke patient, and some patients may be more severely affected by stroke than others. Because of the numerous opportunities for damage, it is not surprising that stroke is the leading cause of disability and the third leading cause of death in Canada (PHAC, 2016).

One of the most understudied and poorly understood consequences of stroke is both bladder issues (incontinence) (Jordan, Mackey, Coughlan, Wyer, Allnutt, & Middleton, 2011; Pettersen, Saxby, & Wyller, 2007) and bowel issues (constipation and incontinence) (Harari, Norton, Lockwood, & Swift, 2004; Lim & Childs, 2013). Urinary

incontinence is a fairly common effect of stroke, affecting 40 to 60 % of stroke survivors (Woodward, 2014). Bowel incontinence is reported to affect less than 56 % of stroke patients, and constipation issues can affect up to 60 % of stroke patients (Harari et al., 2004). Although incontinence can be a devastating adverse effect on its own, it is often accompanied by poor mobilization, aphasia, and depression, which can lead to even more difficulties associated with incontinence (Thomas et al., 2011). Also, not only can incontinence be impacted by depression, it can also lead to the development of depression in stroke patients.

If incontinence becomes a long-term, ongoing issue, it can lead to increased mortality and subsequently frequent admissions to hospital (Jordan et al., 2011). Decreasing the adverse outcomes of stroke can potentially help avoid readmissions to hospital and provide a more positive overall outcome for the patient. To accomplish these overarching goals requires communication and commitment from both nursing staff and the patient. Essentially, when a patient can foresee the benefits of an intervention, and feels that such an intervention can enhance his or her quality of life, he or she is likely to become more committed to improvement, often resulting in more positive outcomes. Patient commitment, along with staff commitment, plays a huge role in the success of bladder and bowel training programs. So, without commitment from both parties, it is highly unlikely that positive outcomes will be seen.

Although the patient holds the greatest burden associated with his or her incontinence, the impact is also felt by the caregiver. Incontinence places an extra strain on caregiver duties, and therefore, the caregiver may also feel the burden often associated

with incontinence problems (Woodward, 2014). This can occur especially once the patient is discharged from hospital and a family member assumes the role of primary caregiver.

Incontinence can negatively impact quality of life of the patient, especially the desire for socialization and overall sense of well-being. Increased isolation from a lack of social support/socialization is also common with incontinence, as patients may feel embarrassed, not wanting to attend social functions for the fear of incontinence becoming an issue (Woodward, 2014). For many patients, it can become an embarrassing adverse effect, and because of this, they may not want to seek help for fear of being judged or criticized because of their incontinence (Herr-Wilbert, Imhof, Hund-Georgiadis, & Wilbert, 2010; Rosqvist, Aukee, Kallinen, & Rantanen, 2008).

Incontinence post stroke also places increased stress and workload on nurses during the patient's acute and rehabilitation phases of recovery. The maintenance and management of incontinence in any patient can be challenging for nurses, but this is often exemplified in stroke patients, especially as the severity of the stroke and subsequent side effects increases. This is because severity of stroke and level of care required presents as a directly proportional relationship (French et al., 2016). The challenges for nurses in caring for stroke patients experiencing any type of incontinence can be related to a multitude of facets such as time management, increased workload, lack of education regarding the impact of incontinence, and lack of formal policy and/or clinical guidelines pertaining to bladder and bowel management strategies in the healthcare institution.

There is potential for the management of bladder and bowel continence to be improved, or even regained, post stroke. While it is extremely difficult to prevent incontinence post stroke, regimens and protocols that promote "re-training" the bladder and bowel can aid in the reduction of this symptom (Harari et al., 2004; Jordan et al., 2011). The literature discusses different regimens for both bladder and bowel re-training, and both types of incontinence can have several different approaches to management. Each type of management strategy has pros and cons, requiring different levels of involvement and commitment from both patients and staff. The following sections will discuss the individual types of strategies/regimens and the process of implementation for each, drawing from recommendations and data analysis of past research involving formalized bowel and bladder training protocols.

Bladder Incontinence

The management of bladder incontinence is crucial to the overall well-being and recovery of stroke patients. Incontinence, as stated previously, can lead to increased hospital admissions post-discharge. Bladder incontinence, in particular, is often a predictor for increased falls. Along with incontinence, patients may also experience decreased mobility and coordination, so the act of trying to reach a bathroom facility in a hurry could cause them to fall, which can lead to further problems and health complications (Rosqvist et al., 2008). Impaired skin integrity is another major complication of incontinence that can lead to decreased mortality and increased hospital admissions. When skin integrity is compromised, it can lead to skin breakdown, discomfort, and possible infection (Jordan et al., 2011).

After stroke, it is possible for several types of urinary related symptoms to occur. These symptoms may be classified as problems with retaining urine (storage), emptying the bladder, or both. While there are many types of bladder and urinary incontinence, one common theme exists amongst all types – incontinence always involves the involuntary leakage of urine (Woodward, 2014). On admission, 40-60% of stroke patients present with urinary incontinence. Upon discharge from a stroke and rehabilitation unit, this number is reduced to 25%, and one year post stroke, it is further reduced to 15% (Thomas et al., 2011). While there is an obvious reduction in prevalence from admission to discharge, opportunity still exists for further reduction or elimination. The 15% of the stroke population that continue to experience urinary incontinence remain at risk of continued adverse effects and health issues. By working towards further reducing this statistic, an overall goal of better perceived quality of life post-stroke by the patient may became more attainable.

Although many refer to any leakage of urine as incontinence, the type of incontinence depends on the etiology, and will also influence the type of bladder retraining that needs to occur for that particular patient. Woodward (2013) describes six different types of urinary incontinence. The three most common are stress, urge, and mixed urinary incontinence. Stress incontinence is defined as occurring on exertion, for example, during coughing, sneezing, or laughing. Urge incontinence occurs when there is an unavoidable urge to void, and is often associated with frequency and nocturia as well. When both urge and stress incontinence occur together, it is referred to as mixed urinary incontinence. Other types of urinary incontinence include urinary retention, which is

accompanied by overflow incontinence; reflex, where incontinence only occurs once the bladder reaches its maximum volume capacity; and continuous bladder incontinence. Although it is possible for stroke patients to experience all types of incontinence, the most common types for patients with neurological problems are urge and stress incontinence (Fisher, 2014; Herr-Wilbert et al., 2010). Identification and understanding of each type of incontinence will aid in the appropriate choice of retraining program for each individual patient. Failure to identify the type of incontinence can lead to the implementation of an inappropriate retraining program, subsequently resulting in unfavorable outcomes for the patient (Herr-Wilbert et al., 2010).

Bladder Training

Five research articles were identified that discussed the use of bladder training. Amongst all of the articles included in this paper, bladder training was the most common management method used amongst cognitively able patients. Studies that included bladder training methods used randomized control trials, mixed methods, and qualitative evaluation processes to guide the research. As well, a metastudy of Cochrane reviews also included bladder training as a prominent bladder incontinence management strategy (Roe et al, 2006a; Roe et al., 2006b)

Bladder training aims to modify behaviours and result in an overall change in bladder habits. To establish successful bladder training, a "normal" voiding pattern must first be identified for each individual patient using a "bladder diary". Once this is identified, the goal is to gradually increase the interval between each subsequent void. For example, if a patient is normally voiding every 30 minutes, for two days the goal

could be to increase this interval to 45 minutes. Once this goal is reached, a new goal with a longer time interval should be established (Roe et al., 2006a; Woodward, 2014). This increase is usually self-regulated and timed by the patient, but can be enforced by caregivers or nursing staff if necessary. For example, if a patient has cognitive or visual impairments as a result of the stroke, it may be necessary for the nurse to intervene so that the interval can be properly maintained and identified.

Often, bladder training and pelvic floor muscle training (PFMT) are used in conjunction with one another. Pelvic floor muscle training (PFMT) is commonly referred to as "Kegel exercises" and involves the repetitive contraction of the muscles in the pelvis to increase strength and the ability to resist urinary urge (Woodward, 2013). The combination of bladder training and pelvic floor muscle training was common amongst several of the studies (Roe, Ostaszkiewicz, Milne, & Wallace, 2006b; Rosqvist et al., 2008; Thomas et al., 2011; Thomas et al., 2014). Overall, bladder training, whether used in conjunction with PFMT or not, was found to be an effective strategy for managing bladder and urinary incontinence in stroke. A small study of only 11 participants revealed that after eight months of combined bladder training and pelvic floor muscle training, rates of incontinence decreased from an average of 0.88 episodes a day to 0.3 episodes (Rosqvist et al., 2008).

The different stages of design, implementation, and evaluation of a voiding program called ICONS (Identifying Continence Options) were examined by researchers across three separate studies (French et al., 2016; Thomas et al., 2011; & Thomas et al., 2014). Bladder training and PFMT works best with stroke patients who suffer from stress,

urge, mixed, or functional incontinence (Thomas et al., 2011). Knowing the type of incontinence prior to implementing a strategy is important, as the wrong strategy may not execute positive results, and this can prove to be frustrating and difficult for both patient and caregiver. For this reason, several different strategies voiding strategies were used in the ICONS program (bladder training with PFMT and prompted voiding). Results were not specified for the individual strategies but rather presented as a whole. Overall, 21% of the participants became continent post intervention, and a significant decrease in incontinent episodes occurred for those who remained incontinent (Thomas et al., 2014). Because results were not specific, it is not clear the ultimate impact that bladder training with PFMT had on the aggregate population. Knowing the specific data for each type of intervention would have been beneficial when planning and designing bladder management guidelines, but the overall impact of all strategies combined was positive. Nursing staff interviewed during the evaluation stage identified that ensuring the right strategy was chosen for the right patient was one the most difficult parts of the program. But, once the right strategy was established and implemented, nurses reported that there was a marked increase in bladder continence and overall well-being of the patients (French et al., 2016).

Ten trials using bladder training as a strategy were identified in a systematic review (Roe et al., 2006b). Studies included used bladder training only, compared bladder training to other strategies, and bladder training used in conjunction with PFMT or biofeedback. In every scenario, bladder training used alone or in conjunction with another method resulted in improved outcomes and less incontinence episodes for

participants. For example, one particular study employed bladder training, PFMT, or a combination of both therapies for women who were experiencing urinary incontinence (Elser, Wyman, McClish, Robinson, Fantl, & Bump, 1999). On average, patients in that study experienced a decrease in incontinence episodes from 13 episodes per day to 5 episodes per day after the 12 week intervention.

An outcome that is sometimes examined in bladder management strategy trials is overall perception of quality of life. One study revealed significant results of this perception, with 30.2% of participants having a negative view of their overall quality of view before the intervention, and only 11.6% sustaining this view at the eight-month follow-up (Rosqvist et al., 2008). This impact on quality of life was measured using a scale developed by the researchers. The testing of reliability and validity for this tool was not established by the researchers. In another study, quality of life impact was measured using a reliable scale, the Incontinence Impact Questionnaire, and therefore reliability and validity is established for these results (Wyman, Fantl, McClish, Harkins, Uebersax, & Ory, 1997). In this particular study, the 123 women who completed the six week bladder training program expressed improved aspects of their quality of life, especially in their relationships, ability to complete activities of daily living, and emotional impact.

Prompted Voiding

A second strategy for the improvement of bladder incontinence is prompted voiding. During prompted voiding, patients are approached with the offer of toileting at regular intervals. Although this strategy is most often used with patients who are cognitive impaired, it can also be initiated with those who do not suffer from cognitive

impairment (Roe et al., 2006a). Similar to bladder training, it focuses on the model of behavioural adaptation and retraining, with the only difference being who initiates the toileting, patient or caregiver. The overall goal of prompted voiding is not only to reduce incontinent episodes, but also to increase self-initiated toileting. This goal is achieved through behaviour-shaping interventions and the use of positive feedback once self-initiation begins (Roe et al., 2006a).

It is common for several strategies to be tested and compared in a research study. The systematic voiding program ICONS utilized not only bladder training and PFMT as discussed above, but also prompted voiding as one of the strategies in the trial (French et al., 2016; Thomas et al., 2011; & Thomas et al., 2014). In these studies, prompted voiding was only offered to patients with cognitive deficits. The majority of the participants across the three articles outlining the study were assigned the prompted voiding strategy (68%). At regular timed intervals, patients would be approached, questioned to their degree of being "wet or dry" and then offered toileting based on their response. If patients correctly indicated that they were "wet or dry" and successfully toileted, praise would be offered as positive feedback (French et al., 2016; Thomas et al., 2011; & Thomas et al., 2014).

Across all stages of the ICONS trial, it was discovered that nursing staff felt prompted voiding was the simplest strategy to initiate. Even when patients did not display cognitive deficits, prompted voiding was often chosen by nursing staff as the "best" strategy (French et al., 2016). It is not clear why this became the common practice, although it may be connected to patients becoming "stressed out" and overwhelmed by

the primary responsibility placed on them after the initiation of the bladder training strategy. Another potential reason for this decision by nursing staff is the potential increase in workload bladder training presents for both patients and nursing staff. Bladder training requires increasing the time increments between voids over time, whereas prompted voiding uses the same time interval throughout the entire process (French et al., 2016). This constant monitoring and adjusting of time intervals could deter both nursing staff and patients from wanting to use bladder training as a bladder management strategy.

As stated above, statistics for each individual strategy initiated in this trial were not specified, so it is unknown how prompted voiding compared to bladder training with PFMT overall. There was a vast reduction of both incontinence episodes and total incontinence over a five day period (Thomas et al., 2014). Specifically, 28% of patients reported being continent after six weeks, and patients who were previously experiencing between eight and 17 incontinence episodes a day reported a median reduction of three episodes per day (Thomas et al., 2014).

The systematic review conducted by (Roe et al., 2006b) identified six studies that included prompted voiding in its trials. One of the more recent studies included in the systematic review had significant results between the experimental and control groups for prompted voiding (Jirovec & Templin, 2001). In that study (a 2x2 mixed design analysis), participants were exposed to either the experimental (prompted voiding) or control group over a six month period. Of the 44 participants in the experimental group, 28 experienced a decrease, compared with a very small decrease in episodes in 15 of the 30 control group members. Specifics with regards to the exact decrease (number of

incontinence episodes at baseline compared with the end of the intervention period) are not available in the article.

One major positive outcome of the systematic review was the important impact that prompted voiding appeared to have on self-initiated requests for toileting (Roe et al., 2006b). One study examined self-initiated toileting or "appropriate toileting" in a group of cognitively impaired nursing home residents (Schnelle,, Traughber, Sowell, Newman, Petrilli, Ory, 1989). After a prompted voiding trial was initiated, appropriate toileting rates increased from 17% to 63%. As this is one of the overall aims of prompted voiding, this was a welcomed result.

Timed Voiding

Timed voiding is very similar to bladder training, and is often referred to scheduled or regular toileting. With timed voiding, there is a regular, fixed interval between toileting episodes. Unlike bladder training, the interval is chosen at the beginning and stays the same throughout. This strategy can be used with patients with or without cognitive deficits (Roe et al., 2006a). One study initiated a timed voiding regimen in elderly living in residential homes (Tobin & Brocklehurst, 1986). For daytime incontinence, there was not a significant difference in reduction of episodes between the experimental and control groups (40% and 29%). Of particular interest though, was the reduction in nighttime incontinence, with 41% of the experiment group showing these results compared with 23% of the control group (Tobin & Brocklehurst, 1986).

Habit Retraining

Habit retraining, like timed voiding, is also similar to bladder training. The major difference between habit retraining and bladder training is that habit retraining does not aim to modify a patient's behaviour, rather, it aims to anticipate voiding behaviour and complete toileting before incontinence happens (Roe et al., 2006a). This is done by identifying the patient's voiding patterns, and increasing or decreasing the times between toileting accordingly. This differs from timed voiding in that the intervals change as needed. Again, it can be used for patients with or without cognitive deficits, but it may become labour intensive for the caregiver if the patients are not able to remember the time intervals on their own (Roe et al., 2006a). Only one study was found that examined this type of bladder retraining strategy (Colling, Own, McCreedy, & Newman, 2003). The use of habit retraining improved skin integrity and improved incontinence in 75% of a total of 78 participants. As well, habit retraining reduced the amount of output per incontinence episode, and also decreased urinary frequency in a number of participants (Colling et al., 2003). These objectives (output per incontinence episode and skin integrity) could potentially be directly correlated, and could be an added benefit of this particular bladder training strategy.

Overall, it is evident that some bladder strategies have been utilized more than others in research trials. Although all strategies present their individual merits, it is felt that some will work better than others for the purpose of the practicum project. Bladder training and prompted voiding appear to be the most utilized and studied. These were the two strategies used in the ICONS trial (French et al., 2016; Thomas et al., 2011; Thomas

et al., 2014). Although logistically, ICONS is not an option for Western Health (mainly because of the increased staff ratios used during the implementation stage), the overall ideas, design, and implementation of the project most closely resemble what I envision for my own practicum project. Therefore, unless contraindicated by the upcoming consultations and environmental scans, bladder training and prompted voiding while be utilized in the design of the practicum project.

Bowel Incontinence and Constipation

Another common complication post stroke that is closely connected to urinary incontinence is bowel incontinence and constipation. Approximately 56% of stroke patients are affected by bowel incontinence and 60% by constipation (Harari et al., 2004). Therefore, it is possible for patients to experience one or both of these side effects during some stage of their post-stroke recovery period. While constipation can cause the patient a great deal of pain, discomfort, and frustration, incontinence often contributes to a more decreased perspective on quality of life and recovery (Harari et al., 2004; Lim & Childs, 2013). The majority of the literature found discusses only constipation management. Very few articles were found describing intervention strategies for the management of bowel incontinence, regardless if the participants were stroke patients or not.

Bowel Incontinence

Bowel incontinence, also referred to as fecal incontinence (FI) is "the involuntary loss of liquid or solid stool that is a social or hygienic problem" (Norton, Whitehead, Bliss, Harari, & Lang, 2010). Very few research studies have been completed testing the

implementation of a FI management strategy, and those that exist were completed 20 plus years ago, so their relevancy to the current management and practice may be questioned, especially since these management strategies have not be formally tested in a research study since this time. However, several articles were found that were not research studies, but included information about lifestyle and behavioural modifications that can be implemented to improve bowel incontinence and constipation with stroke, so it has been decided that these will be included in this literature review along with the research studies. The authors of these studies are respected in their individual fields, and the articles were retrieved from scholarly journals, reinforcing their relevancy to be included in this paper.

Norton et al. (2010) examined patients that were at-risk for incontinence and the best strategies to treat each group. The systematic review included research articles that examined the treatment of constipation using different strategies such as weight loss, smoking reduction, medication review for side effects, review of toilet facilities, patient and caregiver education, and a change in diet and fluid intake (Norton et al., 2010). Then, each recommendation was given a grade in accordance with the overall success rate amongst the studies included. According to the guidelines that were pre-determined by the researchers, stroke patients are classed under high risk for experiencing FI. This reinforces the importance of ensuring that bowel management strategies are considered and implemented for these patients. This information could also be used to advocate for more research support in this area to discover which strategies work the best, especially considering very few recent articles were found for this particular subject area.

Significant findings surrounding the success rates of the different strategies will be discussed next.

Several strategies (dietary and fluid intake changes, exercise, and regulating toileting habits) implemented on both patients with FI and constipation resulted in positive outcomes (Harari et al., 2004). One of the limitations of that study was the researchers did not distinguish between constipation and fecal incontinence, so it is impossible to know what final data applies to what ailment. In the study, the patients were offered an intervention that included an assessment by a nurse, education regarding bowel retraining, and recommendations that were later received from a general practitioner. The intervention group who received the education were more likely to make changes to their diet and fluid intake, resulting in a marked decrease of FI episodes per week (Harari et al., 2004). This is consistent with the suggestions made by Norton et al. (2010), who recommend that a change in dietary fiber and fluid intake can decrease FI episodes. As well, when education is provided by a nurse in comparison to patients learning on their own, change is more likely to occur and be sustained over longer periods of time (Harari et al., 2004). Oftentimes, advice from a healthcare professional, such as a registered nurse, can carry a more significant meaning and a greater impact to creating changes in the patients' life.

Constipation

Timely management and treatment of constipation is also important in stroke care. Just as with incontinence, there are several strategies that can be used to counteract the effects of constipation, improving bowel habits and overall quality of life. Many of these

habits consist of dietary and lifestyle changes, but sometimes, medication such as laxatives may need to be introduced to help alleviate the problem. In some instances, the solution for constipation may be as simple as changing the environment; for example, providing more privacy or assisting the patient to a washroom instead of offering a bedpan (Su et al., 2009). In other cases, reviewing the patient's current medication to rule out constipation as a potential side-effect, because, if this is the cause, bowel training may not be necessary (Gallagher & Mahoney, 2009).

Two studies focused specifically on bowel training programs for constipation only post stroke (Lim & Childs, 2013; Venn, Taft, Carpenter, & Applebaugh, 1992). Venn et al. (1992) conducted a randomized control trial where participants were assigned to one of four possible bowel protocols. Protocols included a different combinations of methods, such as morning bowel training with mandatory suppository use, morning bowel training with the option of using a suppository if no bowel movement in the last four hours, and evening bowel training with each suppository option. Within one month of all protocols being implemented, 85% of participants experienced some improvement in bowel movements (Venn et al., 1992).

Two significant findings from the study were the timing of the scheduled bowel movement and increasing fluid intake (Venn et al., 1992). Ratings were assigned to measure efficiency; a higher efficiency rating represented the participant requiring a lower number of days to achieve regular bowel movements. Overall, efficiency of morning bowel training regimens was almost double that of evening (Venn et al., 1992). When increased fluid intake was recommended for a patient and introduced, efficiency

scores also increased, demonstrating a positive correlation between the two variables. In contrast, the addition of dietary fiber resulted in little effect on the increase of bowel movements. Also of significance was the use of suppositories – this factor tends to be quite individualized for each patient and it was recommended that suppositories should not be used if the patient has a bowel movement within four hours of the normal scheduled time (Venn et al., 1992). Similar results were gained from incorporating dietary modification and some laxative use in a study by Harari et al. (2004).

Venn et al. (1992) also stated that nursing staff were provided with education prior to initiating the new protocol and that information was also provided to the patients. This is consistent with a finding presented by Lim and Childs (2013) who established that when patients are provided with a nurse-led intervention versus routine care, more significant improvement will be evident in the patients who were provided with information and guided through the bowel training program by a nurse familiar with the current standards and policy. Comparison between a control group who received limited education and an intervention group whose participants received extensive education (both patient-led and nurse-led) identified that education led to positive lifestyle changes, and ultimately, a reduction in the rate of constipation (Harari et al., 2004).

Designing and Evaluating an Education Program for Nurses

When planning to develop a learning resource, it is important to consider the learning needs and learning style of the target audience. This information is crucial in the overall design and delivery of educational material. Also, the evaluation component of any project should also be planned and discussed in the development stages to ensure that

what is being evaluated is what is actually being presented. Project development and evaluation constitute a continuous cycle, and the evaluation data (feedback) collected can aid in revising the project for future use (Caffarella & Daffron, 2013). For this particular practicum project, educational resources will need to be developed to aid in the implementation of the bladder and bowel retraining program. In particular, these educational resources will be aimed towards registered nurses, and will need to be presented in a variety of ways, ensuring the information reaches all stroke unit staff members.

Currently, Western Health offers a two-day stroke course, and it is envisioned that this information will be included into the existing course as a presentation. Nurses who are new to the stroke unit are required to complete this course before being assigned to any stroke patients, so generally they are entering this course with no previous knowledge of any aspects of stroke care, including bowel and bladder management. Providing practice-based information in a small group setting allows for the smooth transition of evidence into practice (Kelly, Cunningham, McCalister, Cassidy, & MacVicar, 2007). Typically, each time the stroke course is offered, between 10 and 12 nurses are invited to participate. Small group settings generally include a facilitator, case studies, and presentations of information to a small group to help incorporate best practice guidelines. This is similar to the educational approach currently utilized by the presenters of other topics during the stroke course, therefore, using this approach will provide consistency in learning over the two day stroke course. A small group setting is often more conducive than large group lectures for information sharing and provides for easier interaction with

all members of the group. Therefore, the capability of being able to deliver the information easily and freely increases the opportunity for change in the workplace (Kelly et al., 2007). It is also common in this type of learning environment to use case studies and scenarios to reinforce the information (Kelly et al., 2007). Presenting nursing staff with a scenario of a patient experiencing incontinence post-stroke could help in identifying the type of incontinence and choosing the most appropriate strategy for that particular patient.

Because the majority of the nursing staff already working on the unit have already completed the stroke course, the information will have to be delivered to them in a different way. This will be completed in the form of an e-learning module. With the increased focus on continuing education and more flexible learning opportunities, distance and electronic learning (such as e-learning) have become popular in the healthcare arena, and have been increasingly utilized to help close the "gaps" in quality healthcare (Kobewka, Backman, Hendry, Hamstra, Suh, Code, & Forster, 2014; Wilkinson, Forbes, Bloomfield, & Gee, 2004). E-learning is an educational tool that is currently used within Western Health to deliver information on up-to-date practices and best practice guidelines, so delivering the educational material in this way would be familiar and not technically difficult for the nursing staff. The modules can be accessed at work or at home, providing flexibility which increases the likelihood that the education will be completed (Ng, Bridges, Law, & Whitehill, 2014; Wilkinson et al., 2004). The e-learning modules will also include case studies and scenarios to ensure that both groups are receiving the same opportunities for practice and the same information. A possible

design issues with e-learning may be technical issues (such as volume, graphics, and video content). As well, ensuring that the content is actually completed before the nurse attempts to utilize bowel and bladder training regimens could become an issue. To overcome the possibility that nurses may choose not to complete the e-learning modules, the modules will have a deadline for completion by all registered nurses.

Currently, the design plan is to develop two separate modules; one for bladder management and one for bowel management. The modules will present information about the different strategies for bladder and bowel incontinence and how to choose the best one for individual patients. Case studies will be presented throughout the modules to enhance understanding of the material presented, and to allow for practice with applying the concepts. As well, a post-test with a specific pass rate will be included at the end of modules. This will ensure understanding of the concepts and guidelines and will aid in proper use of the strategies and promote successful implementation.

This project will have to be evaluated from two angles; first, from a delivery point of view, and second, the nurses' knowledge will have to be evaluated. After the first stroke course including this new information is delivered, an evaluation of the overall content, design, and delivery of materials could be completed. This could either be done through a survey or a focus group. The focus group could give the participants a chance to provide feedback without the restriction of standard questions, and potentially result in a more thorough evaluation of the program (Kobewka et al., 2014). Formative evaluation, such as this example, occurs as the learning experience is being developed and used (Scheckel, 2016). This is useful to obtain feedback and re-evaluate the overall design and

implementation process, making changes as necessary. From the learner perspective, formative evaluation can provide the ability to clarify concepts during or shortly after the presentation of the material, as well as giving the learner the opportunity to provide feedback to enhance their learning experience in the future (Scheckel, 2016).

To evaluate the nursing staff knowledge before and after the completion of either the presentation or e-learning module, a pre-test and post-test could be included. This type of evaluation can gauge the overall learning experience, and can include a section to test the knowledge of the participant, as well as a section to provide overall feedback on the module (in the post-test) (Wilkinson et al., 2004). This evaluation component can be classified as summative. In summative evaluations, feedback is collected at the end of the learning experience to evaluate the learner's comprehension and application of the material, as well as to determine whether or not the course objectives have been met (Scheckel, 2016). If objectives are not being met, or learners are scoring below the expected level on the post-test, this could be an indication that changes need to be made to the content of the presentation to ensure the objectives are met.

Theory Related to Development of Proposed Practicum

Referring to the underpinnings and assumptions of existing theories and frameworks can guide the development, implementation, and evaluation of any learning resource. Oftentimes, information and inspiration may need to be drawn from several different theories and frameworks to allow a project to come together. To develop this practicum project, ideas and assumptions from adult learning theory and normalization process theory have been utilized.

When developing a learning resource for adult learners, such as the target audience of registered nurses, several considerations need to be taken. Principles of adult learning theory include the learner's need to know, self-directed learning, prior experiences of the learner, readiness to learn, and motivation to learn (Knowles, Holton, & Swanson, 2011). Adult learners need to understand why the knowledge is considered important and necessary, that is, why they need to learn it. A major obstacle in learning and implementation of new knowledge is the transfer of information/evidence from research to practice, and the unwillingness of nurses to change their current practice. In order to be motivated and ready to learn, the adult learner needs to see that the change is ultimately for the betterment of the patient and that it will eventually lessen their workload and benefit them as well. As well, by creating an e-module of the information, registered nurses can learn at their own pace and on their own time, which is an important aspect of learning for adult learners.

Connected to one of the principles of adult learning is Normalization Process Theory. This theory, stemming from sociology roots, examines why things, such as best standards of practice, become, or do not become, a normal part of everyday work/life. It focuses on the implementation, embedding, and integration of such practices (May & Finch, 2009). The theory proposes that by participants working together, through cognitive participation, change can eventually be made and sustained. Participants need to feel enrolled in the new practice, and need to understand the reason for its implementation. As well, legitimation works to engage and involve participants, making them see the benefit of the new standard of practice being initiated.

Similarities between both theories are noticeable. In order for learning and subsequently change to occur, learners/participants first need to understand the reason for the change. Once accepted, participants can become invested in the change and work towards supporting it. This notion will be important in the design and implementation of the practicum project. Ensuring nursing staff are aware of the benefits and need for this type of program will aid in their motivation to participate in the learning and ultimately in the deliverance of the practicum project its implementation stages in the future.

Issues Surrounding Implementation of Bowel and Bladder Management Strategies

As with any new intervention, policy, or procedure, there are usually issues and barriers surrounding the implementation. Many of the issues and barriers for implementation stem from a lack of education provided to nurses, lack of formal policy, nurse's perceptions/preferences, and workload. Nursing is a profession that encompasses continuous learning, and it is the responsibility of nurses to be accountable for their personal learning goals and seeking learning opportunities to reach these goals. This continuous learning is both an ethical and professional expectation of nursing practice. In this instance, the employer will have the opportunity to adopt the practicum project as a continued learning opportunity for nursing staff at Western Health.

Without formal policy in place, there is often a lack in the continuity of care (Fisher, 2014). Some nursing staff may already feel that these practices are part of the daily routine of the unit, and implement them without formal policy (Jordan et al., 2011). Others may not see this as common practice, or may be new to the unit and unaware of these strategies, therefore not implementing them. This results in some patients receiving

bowel and bladder management for continence, and possibly without consistency on a day to day basis. A lack of formal policy/guideline can lead to the belief "if it's not policy, I'm not doing it" and subsequently inconsistency in care. This could potentially pose as a barrier to implementation of the project, especially if it is not a required learning opportunity or integrated into the common practices of the unit. Also, if there are a lack of resources available (i.e. formal education and instruction) this may contribute to a lack of formal policy.

Oftentimes, continence care is seen as low priority in the overall care of an acute stroke patient. An overall goal of incontinence care can be to "make sure they are all clean, dry, and comfortable" (Thomas et al., 2014, p. 1313). This outlook does not place a focus on decreasing the amount of incontinence, but rather, dealing with the incontinence as it occurs. Also contributing to the issue may be the personality of the patient. If the patient is passive, and does not advocate for themselves, the incontinence may not be seen as a big concern or issue for the patient. In the early stages of stroke treatment, there is an increase in acute issues, and often other comorbidities, that can take precedence over incontinence care (French et al., 2016; Thomas et al., 2011; Thomas et al., 2014). In these studies, nurses expressed concern that other aspects of stroke care usually took priority, such as medication administration.

In one study, extra staff were provided to the units (when available) during the implementation phase of the ICONS project (French et al., 2016). This was due to nursing staff concerns of the possibly of an increased workload during the implementation of these strategies. Although it was indicated that workload had increased, the increase did

not have as great as an impact as it did in those areas that did not receive the extra staff during the implementation period. Overall, the provision of extra staff positively correlated with overall satisfaction with the program implementation (French et al., 2016).

To ensure implementation occurs smoothly, it is imperative that proper education, guidance, and support is provided to both management and nursing staff. Nursing staff are more likely to exhibit a willingness to participate and incorporate new procedure into their already demanding workload if they understand the benefits and are given adequate information to implement the practice properly. Not only should high-quality, self-directed learning be provided to staff, it should also be provided to patients and caregivers to ensure the practices are continued and independence can be promoted (Fisher, 2014). Without proper education, nursing staff may become frustrated with the skill and not use it, or may be using it wrong, leading to inappropriate management for the patient. Proper education often results in positive feedback and implementation, as well as constructive criticism which aided in the revision of the policy, making it more realistic for everyday use on the unit (Herr-Wilbert et al., 2010). Sometimes, though, nurses may not feel that they need education if their units may already have informal incontinence management strategies in place (Jordan et al., 2011). In this case, it is important to discover what the practices are, and then, if necessary, educate the nurses on how the new practices are different from the current ones being used. If nurses do not see the benefit of switching practices, it is very unlikely that the change will occur. This closely links to the two theories introduced in the previous section, reiterating the importance of linking the

practicum project to theory. This notion is closely related to both the adult learning theory and normalization process theory, which both allude to the fact that without reason for learning and ultimately implementing new knowledge, adult learners (such as registered nurses) will not be fully motivated and invested in the change.

Recommendations

The first recommendation from this literature review is the creation of policy and best practice guidelines to guide the implementation of a strategy is important. Easy to follow guidelines will allow for better understanding and increase compliance rates with new practices (Fisher, 2014). The Canadian Stroke Best Practice Recommendations is a document that examines all facets of stroke care and presents guidelines to help ensure stroke units are meeting the highest standard of stroke care (Casaubon et al., 2016). The latest guidelines, complied in 2015 and published in 2016, dedicate a portion of the recommendations to continence care (Casaubon et al., 2016). These recommendations include, but are not limited to; assessing all stroke patients for bladder incontinence and/or retention, assessing the patient's environment for possible contributing factors to incontinence, creating an individualized management plan based upon the type of incontinence present, and bowel and bladder training (specifically prompted and timed voiding strategies) should be implemented for all patients who require it. Since this documents promotes best practice in Canada, these suggestions should be considered and implemented into a guideline or policy and delivered on all stroke units.

Another recommendation is to provide adequate education to nursing staff when planning to implement such strategies. When implemented successfully, these strategies will not only be of benefit to patients, but also to nursing staff as well. French et al. (2016) suggests that a bladder training program can reduce long-term workload, improve communication better patients and staff, improve nursing attitudes about incontinence, and increase nursing skillsets and overall confidence. If nurses are informed of the possible benefits early in the education stage, they are more likely to become invested into the changes and more motivated to initiate change. It is also important to ensure that the learning experiences are flexible and easily accessed, to meet the needs of the adult learners involved (Thomas et al., 2011).

Finally, early intervention and management of any type of incontinence is should be a goal of incontinence care (Langhorne & Pollock, 2002). Addressing and working to reduce incidence of incontinence early in the diagnosis may help reduce other comorbidities, such as mobility issues, breakdown of skin integrity, depression, and overall a sense of reduction in quality of life (Jordan et al., 2011). Early intervention can potentially decrease recovery time, which is beneficial to both the patient and the healthcare system as a whole. A way to ensure early intervention is to include an incontinence assessment during the initial health history and assessment upon admission. As well, patients should be education about the importance of continence, and should know to inform the nursing staff if incontinence suddenly develops so that management strategies can be initiated and recovery will not be hindered.

Limitations of the Literature Review in Support of the Practicum Project

The first limitation that has emerged because of this literature review focuses on the lack of clinical trials occurring in this particular area. Very few recent studies have been completed concerning bladder incontinence management strategies, and very few studies in total have been completed surrounding bowel incontinence management strategies. Through the evidence presented above, it is obvious that bowel and bladder incontinence management is essential to a timely, positive stroke recovery. Therefore, more trials and research surrounding the different type of management strategies would be necessary to understand which strategy works best for different types of patients. The lack of research could potentially affect the overall outcome of the practicum project, making this a limitation of both the literature review and practicum project as a whole. Thus, it is important to review and understand all available material, regardless of the publication date, so that the literature review is as thorough as possible and the project can be developed and implemented to the best possible standard.

It is also necessary to study the effect implementation has on not only nursing staff, but the interdisciplinary team as a whole. Several articles, including Fisher (2014) discussed the importance of providing multi-disciplinary education. In doing so, all disciplines involved in stroke care (nursing, physicians, physiotherapy, occupational therapy, etc.) can understand the current policy in place and be diligent with its implementation and continuation. As well, most of the follow-up occurred within one year of all studies, so long-term follow-up may be necessary to learn more about the longevity of these types of strategies.

Finally, many of the studies were completed on incontinence in the general population, and not focused primarily on stroke patients. It would be beneficial to complete more stroke-specific incontinence studies to have a better understanding of what strategies would work best with stroke.

Conclusion

Incontinence post-stroke, while often ignored, can be a devastating effect, both physically and mentally for the patient. If not addressed, it can decrease skin integrity, quality of life, and be an indicator for repeat hospital admissions. With early intervention and recognition, it can significantly improve the patient's overall recovery and perception of quality of life. When choosing a proper management strategy, it is important to assess each patient as an individual and to develop a personalized management plan for each patient. The type of management strategy is dependent upon the type of incontinence, and with improper plans in place, recovery time can be hindered. Although proper assessment and implementation is necessary, none of these steps can proceed without planning and development. Understanding the learning needs of the targeted audience and the potential barriers that may occur with implementation will result in a much smoother transition from planning to implementation. In this particular project, understanding the learning needs of nurses and providing adequate information and training help to prevent several potential barriers such as resistance to change, proper use of the resource, and understanding the potential benefits to not only patients but the nurses as well.

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Appendix: Literature Summary Tables

Name, Author, Date, Study Objective	Sample/Group (Size, Setting, Characteristics)	Design and Methodology	Key Results/ Findings	Strengths and Limitations	Overall Rating
Name: "Implementing a systematic voiding program for patients with urinary incontinence after stroke." **Author:** French, B., Thomas, L. H., Harrison, J., Burton, C. R., Forshaw, D., Booth, J., Britt, D., Cheater, F. M., Roe, E., & Watkins, D. L. **Year:** 2016 **Study Objective:** Identified several aims: identify what parts of the organization influence implementation, staff views on the implementation of the SVP, and understand how SVP influences patient outcomes.	**Sample:** Eight stroke units in England and Wales. 38 nursing staff total. **Characteristics:** All nursing staff had access to the education program (ICONS). Clinical leaders and nurses from the 8 hospital were included. The hospital included needed to be able to provide extra staff and resources to carry out the intervention.	**Design:** Multi-site qualitative process evaluation. **Methodology:** Semi-structured interviews were conducted with the selected staff. The interviews were conducted by a member of the intervention team, and were completed at the middle and end of the trial period. Only the implementation part of the intervention was analyzed in this article, design and intervention were included in separate articles. The interviews were transcribed verbatim.	-Workload and staffing were most common issues. -Increased paperwork was a barrier. -Positives included increased hope for patients, consistency of care, increased interaction with patients, individualized care plans, and patients received more education and were more motivated in their stroke recovery.	**Strengths:** -Strong study design. -High response of participants. -Based research on a pre-existing framework. **Limitations:** -Results were from a single interview only, there was no follow-up post-intervention. -Providing extra staff during the intervention could skew results as not all nursing units would be able to increase staffing levels for this type of intervention, so the outcome could be quite different.	**Medium:** -Bias may not have been reduced due to provision of extra staffing. Questionable whether it could generalized to other populations.
Name, Author, Date, Study	**Sample/Group (Size, Setting,**	**Design and Methodology**	**Key Findings/**	**Strengths and**	**Overall Rating**

Objective	Characteristics)		Results	Limitations	
Name: "Treatment of constipation and fecal incontinence in stroke patients: Randomized control trial." **Author:** Harari, D., Norton, C., Lockwood, L., & Swift, C. **Year:** 2004 **Study Objective:** To implement an educational intervention that would be combined with assessment and treatment to improve bowel function, compared with the "usual care" patients were already receiving in hospital. As well, improvements in quality of life would also be analyzed.	**Sample:** Stroke patients from 3 rehabilitation units who were at least 1 month post stroke and no greater than 4 years. 146 participants were originally recruited (30% response rate) and 106 completed the entire trial. **Characteristics:** Constipation was defined as less than two bowel movements (BM) per week and fecal incontinence (FI) as any leakage of the bowel. To be included, patients had to have one of the above symptoms.	**Design:** Randomized control trial. **Methodology:** The control group received "usual care" while the experimental group received a nurse-led assessment, education, and treatment. Follow-up was completed at 1, 3, 6, and 12 months. Data were analyzed using statistical methods such as the Mann-Whitney U test. Baseline data was obtained using common rating scales (ex. Barthel Index) signifying validity and reliability of data.	-Significant results were obtained from the intervention group. More dietary and fluid intake changes were made, as was laxative use (both suppository and oral). -Overall, the intervention group reported more normal BM per week than the control group. - FI was less severe in the intervention group after one month of the trial. -There were no significant results pertaining to quality of life in either group. -Lifestyle changes generally did not persist past 6 months post intervention.	**Strengths:** -Strong study design -Strong randomization **Limitations:** -Low response rate. -Results were not always specified between those patients who were constipated and those with FI. -High dropout rate (27% at 12 months). -Baseline data were based on usual habits, no formal data were collected (ie. Recording BM for 1 week prior to intervention).	**Medium:** **-**There was a significant dropout rate which impacted the overall rating of the study.

Name, Author, Date, Study Objective	Sample/Group (Size, Setting, Characteristics)	Design and Methodology	Key Results/ Findings	Strengths and Limitations	Overall Rating
Name: "Assessment – Guided therapy of urinary incontinence after stroke." **Author:** Herr-Wilbert, I. S., Imhof, L., Hund-Georgiadis, M., & Wilbert, D. M. **Date:** 2010 **Study Objective:** To implement therapeutic urinary incontinence management interventions, and to analyze the effect of the new treatment.	**Sample:** 44 stroke patients admitted to a rehabilitation unit. **Characteristics:** There were 19 females and 25 males with an age range of 43 to 92 years. Patients had either suffered a left or right hemisphere stroke, and 7% of the patients had experienced bilateral strokes.	**Design:** Quasi-experimental **Methodology:** Participants were screened for UI and if present, type. Nurses were given education about the management strategy and it was implemented on all patients. A questionnaire was distributed to nursing staff about the experience, and patients' outcomes were extracted from self-report, FIM scores, and an established scale that measures quality of life.	-Over half the participants achieved continence. -Quality of life increased as a result of the gained confidence. -Nurses stated the intervention was positive, but the assessment itself was difficult for everyday use.	**Strengths:** -High participation rate. -Use of established tools for collecting and analyzing data. **Limitations:** -Study design was not stated. -Study design was not clear. Participants were listed as stroke patients for the intervention, but the majority of data collection came from nurses, and it was not specified how many nurses completed the survey.	**Medium:** -No reference made to possible biases, so unclear if these were addressed or not.

Name, Author, Date, Study, Objective	Sample/Group (Size, Setting, Characteristics)	Design and Methodology	Key Results/ Findings	Strengths and Limitations	Overall Rating
Name: "Continence	**Sample:** 41 stroke units in	**Design:** Cross-sectional.	-Less than half the units	**Strengths:** -Strong	**Medium:** -Potential

management in acute stroke: a survey of current practices in Australia." **Author:** Jordan, L., Mackey, E., Coughlan, K., Wyer, M., Allnutt, N., & Middleton, S. **Date:** 2010 **Study Objective:** Understand current practices in continence post-stroke in Australia. As well, the current practices were compared with national guidelines for stroke care.	Australia. **Characteristics**: One nurses from each unit included in the study. All units were located in the New South Wales part of Australia, had to have a multidisciplinary team delivering care, specialize in stroke care, follow care protocols, and have ongoing education for professionals.	**Methodology:** Nurses completed a telephone survey of multiple choice questions about the current practices for continence care. Questions were developed for the study, but were done so in accordance with national guidelines. Screening for validity was recognized. Data was analyzed using SPSS.	had a formalized continence protocol for stroke. -Not all of the units with formal guidelines were implementing them on every patient. -75% of the units had no formal plan, but implemented the national guidelines regardless. -Many formal plans do not conform to current guidelines.	study design. -Tool was validated before use. -Excellent response rate. **Limitations:** -Only one staff member from each unit was interviewed, therefore their views may not reflect those of the entire unit.	for bias as only one staff member from each site was interviewed. That staff member's views may have not reflected the views of the entire unit.

Name, Author, Date	Sample and Type of Review	Key Results/ Findings	Strengths and Limitations
Name: "A systematic review of the effectiveness of bowel management strategies for constipation in adults with stroke." **Author:** Lim, S. F., & Childs, C. **Date:** 2013	**Sample:** Three research studies. **Review Type:** Systematic review **Characteristics:** Inclusion criteria included randomized control trials, evaluating bowel strategies, participants in studies were over the age of 18, and the outcome measurement was successful BM. **Search Strategy:** Three step search strategy. Titles and abstracts were first identified, then once chosen were read and further analyzed. Reference lists of all articles were also searched to identify literature not found through database searches.	-Nurse led interventions were more effective than routine care. -Daily digital stimulation produced more regular bowel movements than doing digital stimulation every other day. -Scheduled toileting results in more regular bowel movements. Morning schedules were more productive than evening schedules.	**Strengths:** -Strong methodology -Multiple sources of literature, including grey literature, were searched. -Specific inclusion criteria. **Limitations:** -Only three articles included. -The studies themselves also had very small sample sizes. -Studies were not recent. -Restricted to English only.

Name, Author, Date	Sample and Type of Review	Key Findings/ Results	Strengths and Limitations
Name: "Systematic reviews of bladder training and voiding programmes in adults: a synopsis of findings from data analysis and outcomes using metastudy techniques." **Author:** Roe, B., Ostaszkiewicz, J., Milne, J., & Wallace, S. **Date:** 2006	**Sample:** 4 Cochrane reviews which included 22 trials altogether. **Review Type:** Meta-analysis **Characteristics:** All reviews examined outcomes that included the subjective outcomes (not specific), frequency and severity of incontinence, and several other objective outcomes (not specified). **Search Strategy:** Cochrane review database was searched. 4 reviews which utilized randomized control trials were selected for analysis. It was not specified how the analysis of the reviews occurred.	-No significant differences between programs for severity of incontinence changes. -Prompted voiding had a higher incidence of requests for toileting post-interventions. -Habit retraining resulted in decreased amounts of skin irritation and breakdown. -All programs resulted in decrease of urinary frequency. -All trials resulted in decrease or elimination of incontinence.	**Strengths:** -Study design -Inclusion of Cochrane reviews. **Limitations:** -Only Cochrane reviews and the articles found within the 4 reviews were utilized. -No specific analysis, difficult to critique based on reliability and validity of methods.

Name, Author, Date	Sample and Type of Review	Key Findings/ Results	Strengths and Limitations
Name: "Systematic reviews of bladder training and voiding programmes in adults: A synopsis of findings on theory and methods using metastudy technique." **Author:** Roe, B., Milne, J., Ostaszkiewicz, J., & Wallace, S. **Date:** 2006	**Sample:** 4 Cochrane reviews that included 22 research studies total. **Review Type:** Metastudy **Characteristics:** Trials were all randomized or quasi-randomized. Each trial examined urinary incontinence. All studies examined one or more of the following bladder training programs: bladder training, prompted voiding, habit retraining, and timed voiding. **Search Strategy:** Reviews were selected from the Cochrane reviews. Analysis was completed of each review and then comparisons were made, method for this is not specified.	-Randomized control trials are the most ideal method for evaluating the effectiveness of an intervention. -Bladder training and prompted voiding have some evidence about their effectiveness. -Habit retraining and timed voiding have very little evidence available. -Bladder training is not suitable for patients with cognitive impairments. -Incontinence can be associated with increased rates of depression and falls, and with a poor outlook on quality of life.	**Strengths:** -Study design -Included theory in the analysis. -Identified the best research methodology to assess urinary incontinence techniques. **Limitations:** -No specifics provided on the analysis methods. -Did not discuss implementation or evaluation (found in a different article).

Name, Author, Date, Study Objectives	Sample/Group (Size, Setting, Characteristics)	Design and Methodology	Key Findings/ Results	Strengths and Limitations	Overall Rating
Name: "Feasibility and acceptability of the pelvic floor muscle and bladder	**Sample:** Eleven women aged 70-71. **Characteristics:** 184 women were originally invited to participate.	**Design:** Pre-post intervention. **Methodology:** Participants completed a three day fluid	**-**Continued participation in the program was high. -Average number of	**Strengths:** -Provided information about statistical analysis. -Aims of the	**Medium:** -Very small sample size. -No control

training programme.” **Author:** Rosqvist, E., Aukee, P., Kallinen, M., & Rantanen, T. **Date:** 2008 **Study Objective:** Examine the feasibility of a program including bladder training and pelvic floor muscle training. As well, identify the acceptability of such a program. The study also aims to prepare for a possible future randomized control trail using the same training program.	Inclusion criteria included urinary incontinence (of any form) at least once per week, consent, and currently not performing pelvic muscle floor training.	and urine diary prior to starting the intervention. They were then exposed to an eight week intervention which comprised of a home counselling session, practicing the exercise portion, and written instructions for both the pelvic floor muscle training and bladder training. Follow-up was completed right after the intervention. The data was analyzed using SPSS.	voids per day decreased slightly. -The most significant result was the decrease in average number of urinary incontinence episodes. -Perception on quality of life also improve post intervention.	study were met. **Limitations:** -No control group. -Pre-intervention data relied solely on self-reported information, so its accuracy could be questioned. -Sample size was small.	group affected the rating.

Name, Author, Date, Study Objective	Sample/Group (Size, Setting, Characteristics)	Design and Methodology	Key Findings/ Results	Strengths and Limitations	Overall Rating
Name: "New-onset constipation at acute stage after first stroke." **Author:** Su, Y., Zhang, X., Zeng, J., Pei, Z., Cheung, R. T. F., Zhou, Q., Ling, L., Yu, J., Tan, J., & Zhang, Z. **Date:** 2009 **Study Objective:** Discover the prevalence of new constipation post-stroke, the risk factors associated with it, and the potential impact it could have on recovery and overall outcome.	**Sample:** 154 stroke patients. **Characteristics:** All participants had had their first stroke, were over 18 years of age, and were admitted to the unit within seven days of diagnosis. Patients who had experienced a subarachnoid hemorrhage were excluded from the study. Patients were also experiencing constipation as a result of the stroke, with no prior history of same.	**Design:** Prospective observational study. **Methodology:** Several scales were used to rate the patients on severity, risk factors, and stroke outcome. These included Rome II Criteria, National Institutes of Health Stroke Scale, Barthel index, DSM IV, and additional information was collected via interviews with the patients.	**-** Over half the participants experienced constipation post-stroke. - Patients who experienced constipation had longer lengths of stay in hospital. - Patients with constipation usually experienced dysphagia and paralysis as well. - Constipation was not found to be associated with depression and the use of anti-depressants. Patients who were not constipated also developed depression post-stroke.	**Strengths:** -Utilized existing, reliable scales to collect and analyze data. - Large sample size **Limitations:** -Only utilized one recruitment site. May not be generalizable.	**High:** -High quality tools that were both valid and reliable. -Large sample size -Appropriate design for proposed study.

			- Constipation was associated with poorer outcomes at 12 weeks post-stroke.		
Name, Author, Date, Study Objective	**Sample/Group (Size, Setting Characteristics)**	**Design and Methodology**	**Key Findings/ Results**	**Strengths and Limitations**	**Overall Rating**
Name: "Study protocol: ICONS: Identifying continence options after stroke: A randomised trial." **Author:** Thomas, L. H., Watkins, C. L., French, B., Sutton, C., Forshaw, D., Cheater, F., Roe, B., Leathly, M. J., Burton, C., McColl, E., & Booth, J. **Date:** 2011 **Study Objective:** To test feasibility, assessing factors related to patients that could affect patient outcomes, how current stroke services	**Sample:** 12 stroke units in England and Wales. **Characteristics:** Specialization in stroke services (either acute and/or rehabilitation). Patients who would be considered in the future for the intervention would be over 18, have urinary incontinence before or after stroke, and who provide consent for the study. This particular study examined the feasibility of such an intervention, so actual patient outcomes were not measured.	**Design:** Three-arm, parallel, open, exploratory, pragmatic, cluster-randomised control trial of a voiding program. **Methodology:** The program would consist of two options, either bladder training with pelvic floor muscle training or prompted voiding (depending on cognitive ability of patient). Post-intervention, interviews will be conducted with nursing staff about the efficiency of intervention,	- The article mainly proposed a study that would be taking place. -The purpose of the article was to outline the feasibility, data collection methods, and sampling procedures that would be taking place.	**Strengths:** -Provided excellent analytical information about upcoming studies and articles that were also included in this literature review. -Examined all aspects of possible study, including feasibility. **Limitations:** -No actual study results, or data, of the incontinence intervention were reported in this article.	**High:** -Although there were no data presented, the researchers achieved their original object of assessing the feasibility of the intervention. -Study outlined all possible biases, blinding, training of assessors, etc.

were affecting outcomes/how the new intervention could improve this, and develop and test data collection tools for future use.		and effect on urinary incontinence would be measured using statistical analysis programs.			

Name, Author, Date, Study Objective	Sample/Group (Size, Setting, Characteristics)	Design and Methodology	Key Findings/ Results	Strengths and Limitations	Overall Rating
Name: "Evaluating a systematic voiding programme for patients with urinary incontinence after stroke in secondary care using soft systems analysis and Normalisation Process Theory: Findings from the ICONS case study phase." **Author:** Thomas, L. H., French, B., Burton, C. R., Sutton, C., Forshaw, D., Dickinson, H.,	**Sample:** 18 staff and 43 patients. **Characteristics**: Patients were admitted to a specific stroke unit, were over 18 years of age, were experiencing urinary incontinence, and were diagnosed with stroke. Staff were those who were directly related with either the management or implementation of the systematic voiding	**Design:** Mixed methods. **Methodology:** Staff were invited to participate in one of two interviews, depending on if they were involved with the management or implementation of the project. A member of the research team collected data from patients or their families. As well, tools such as the	**-**Staff felt the program was better suited to some patients than others. -When outcomes were visible it was more positive for both staff and patients. -Although the program was easy to understand, the paperwork and identifying the type of program for each patient proved difficult for some and	**Strengths:** -Strong study design. -Reliable tools used for measurement. -Examined the program from both the patient and staff point of view. **Limitations:** -Only one site was use for study, so may not be generalizable to other populations.	**High:** -Although the generalizability is questioned, study design was strong and objectives of the study were met.

Leathley, M. J., Britt, D., Roe, B., Cheater, F. M., Booth, J., & Watkins, C. L. **Date:** 2014 **Study Objective:** To evaluate the effectiveness of the implementation of a systematic voiding program, specifically health care professional's views.	program. Education was provided to these staff about the ICONS program prior to its implementation.	Barthel Index were used to collect data about the patients at 6 weeks and completion of the program.	possibly increased the workload. -25% of patients became continent, and others had a significant reduction in their incontinent episodes. -Although the program was multidisciplinary focused, most of the burden fell to nursing staff.		
Name, Author, Date, Study Objective	**Sample/Group (Size, Setting, Characteristics)**	**Design and Methodology**	**Key Findings/ Results**	**Strengths and Limitations**	**Overall Rating**
Name: "The influence of timing and suppository use on efficiency and effectiveness of bowel training after a stroke." **Author:** Venn, M. R., Taft, L., & Carpentier, B. **Date:** 1992 **Study Objective:** To evaluate four	**Sample:** 46 participants. **Characteristics:** Participants were currently receiving rehabilitation services and were given education surrounding dietary fiber and fluid intake.	**Design:** Experimental **Methodology:** Demographic data and information regarding usual bowel habits were collected. Participants were rated on a scale; the higher the rating, the faster the patient	-Participants who were scheduled for morning bowel movements had significantly better outcomes. -A positive correlation was discovered between increased fluid intake and regularity	**Strengths:** -High participation rate. -Groups were randomized -Transferrable to general population. **Limitations:** -Did not specify what type of bowel issue was present (assumed	**Medium:** -All objectives and aims of the study were not clearly met.

different bowel strategies utilizing two variables: suppository use and time of day for scheduled bowel movements. The factors of dietary and fluid intake changes were also considered.		responded to the treatment (five consecutive days of bowel movements). ANOVA was used for statistical analysis	of bowel movements. -No significant difference was found between increase in dietary fiber and regularity of bowel movements.	constipation). -Did not closely analyze suppository use, even though it was a study objective.	

Name, Author, Date, Study Objective	Sample/Groups (Size, Setting, Characteristics)	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Overall Rating
Name: "The effect of bladder training, pelvic floor muscle training, or combination training on urodynamic parameters in women with urinary incontinence." **Author:** Elser, D. M., Wyman, J. F., McClish, D. K., Robinson, D. Fantl, J. A., &	**Sample:** 181 women. **Characteristics:** Mean age of patients was 61. All patients were ambulatory, without cognitive deficits, and having between 1 and 100 incontinence episodes per week,	**Design:** Randomized control trial. **Methodology:** After an evaluation, patients were randomized into one of the three interventions groups for the 12 week program. Face-to-face visits were conducted during the first six, and	- All three interventions were found to be effective, regardless of the type of incontinence.	**Strengths:** -Large sample -Data analysis completed using statistical methods. -Strong study design. **Limitations:** -Used self-report for the final six weeks of the intervention, may be an unreliable	**Medium** - The use of self-report may lead to bias in the results. -No information regarding blinding.

Bump, R. C. **Year:** 1999 **Study Objective:** To compare and contrast the effects of different interventions (bladder training, PFMT, or combination) on women with urinary incontinence.		self-reports were submitted during the last six weeks. Statistical tests such as ANCOVA were used to analyze covariance. Chi-square tests were also performed on the collected data to compare study variables.		data collection method.	

Name, Author, Date, Study Objective	Sample/Groups (Size, Setting, Characteristics)	Design and Methodology	Key Results/Findings	Strengths and Limitations	Overall Rating
Name: "Predicting success using individualized scheduled toileting for memory-impaired elders at home." **Author:** Jirovec, M. M., & Templin, T. **Year:** 2001. **Study Objective:** To study the	**Sample:** 118 patients **Characteristics:** All participants were elderly, incontinent, memory impaired, and living at home with a caregiver.	**Design:** 2x2 mixed design analysis. **Methodology:** The participants and their caregivers were randomly assigned to one of two experimental groups or the control group. One of the experimental groups was visited on a	-Incontinence decreased in both experimental groups. -No change noted in the control group. -Cognitive ability was a positive indicator for increased success, as was mobility. -The experimental groups had the same outcome,	**Strengths:** -Strong study design -Strong analysis methods used. -Randomization of participants. **Limitations:** -Because participants were cognitively impaired, resistance to toileting may	**Strong** -Very few participants were lost in the study. -Study design was of a strong nature. -Statistical methods well described. -Inclusion and exclusion criteria for participant

effectiveness of an individualized scheduled toileting (IST) program.		bimonthly basis, and the other every six months. The difference existed to assess the amount of assistance needed by the caregivers. The experimental groups were taught the IST program, and a toileting schedule was developed by each caregiver with assistance from the consultant. ANOVA could not be used, so the nonparametric sign test was used.	therefore frequency of visits did not affect the IST program.	have impacted study results.	s well identified.

Appendix B:

Consultation and Environmental Scan Report

Memorial University of Newfoundland
School of Nursing
Master of Nursing Program

PRACTICUM: CONSULTATION AND ENVIRONMENTAL SCAN REPORT

Student's Name: Gina Billard **Student ID #: 200636983**

Course Names and Numbers: NURS6660

Supervisor: Donna Best

Title: Standardized Bowel and Bladder Training Program Resource for Stroke Nurses at Western Health

Date: March 26, 2017

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1. Brief overview of the project (*maximum 1 page*)

Bowel and bladder training has proven to be successful to the overall well-being of stroke patients (Lim & Childs, 2013; Roe, Milne, Ostaszkiewicz, & Wallace, 2006). To attain this success, it is important to understand the different types of management strategies, and which ones are best suited for the different characteristics of incontinence. For example, some strategies work better with patients experiencing urge incontinence, others with stress incontinence. As well, some strategies are not suitable for patients who also experience cognitive deficits as a result of the stroke (Woodward, 2014). A key element in successful development and implementation of this type of training program is the involvement and education of the people who will be delivering and using the resource on an everyday basis, the nursing staff.

After an informal conversation with the manager of the stroke unit at Western Memorial Regional Hospital, it was obvious that there were no formal incontinence strategies in place, nor were the registered nurses on the unit educated in the importance of bladder and bowel training after stroke. Based on this conversation, an informal learning needs assessment determined that a practicum project could potentially satisfy this learning need. Specifically, the practicum project will include the development (or adaptation) of a standardized bowel and bowel training program for stroke nurses, as well as resources to deliver this information to registered nurses working on the unit. Consultations were completed with management and registered nurses to understand the learning needs of nursing staff and any potential barriers that may arise through the development and proposed implementation of this project. The purpose of completing the environmental scan was to discover what guidelines and resources are available in similar institutions in Newfoundland and Labrador.

The education program will include a training module that will essentially serve two purposes; it will be able to be incorporated into a pre-existing two-day stroke training course, and it will be available as an e-learning module for staff who have completed the stroke course in the past. As well, a resource manual will be available on the unit for quick reference, and will include information such as the types of bladder and bowel management strategies available to use and flowcharts on how to choose the best one for the individual patient. The overall goal is that through the development of these guidelines and educational material, Western Health will be able to potentially meet best practice recommendations in this area of stroke care.

2. Specific objective(s) for the consultation and environmental scan

- To conduct consultations with managers of both stroke and rehabilitation units.
- To conduct consultations with nursing staff on the stroke unit.
- To identify management's position on the design and implementation of the project.
- To develop an understanding of the learning needs of the specific nursing population.
- Analyze the data collected from the interviews for a learning needs assessment.
- To identify what type of education is required for registered nurses to be able to adapt this type of project on the specified unit.
- To identify any possible barriers that may exist in the implementation and delivery of the education program in the future.
- To determine if the practicum project will be useful in any other area of the hospital besides 3B medicine (ex. Rehabilitation Unit).
- To gain an understanding of bowel and bladder management strategies used in other institutions in the province with stroke units.
- To apply the practices of other institutions (if appropriate) to the development of guidelines for Western Health.

3. Setting and Sample

Setting:

Consultations for this project took place at a time and location most convenient for the participant. The interviews took place at various locations throughout Western Memorial Regional Hospital or through a telephone conversation. Due to the busy

schedules of all the participants, a set location could not be used. For the environmental scans, setting was not an issue as all data was collected through either email or telephone conversations.

Sample:

Several consultations occurred with identified key stakeholders. Originally, consultations were planned to include two managers, one from the stroke unit and the other from the rehabilitation unit. Upon discussion with the rehabilitation unit manager, it was decided that the information needed would be better obtained from nursing staff on this unit, so this change was made. Therefore, only one management consultation occurred. This particular manager was chosen as a consultant for this project because of experience as a registered nurse working on the stroke unit, and now as the manager of that same unit.

Registered nurses working in the stroke unit were the main focus group for the consultations. As the education resource portion of the project will be developed for registered nurses, input on educational needs and wants is cornerstone for development. As well, these consults will aid in the identification of potential barriers that may arise during development and the proposed implementation plan. Originally, the plan was to consult with six registered nurses, but only five nurses agreed to participate in the consultations (including one nurse from the rehabilitation unit who was referred to me by management). A mass email, which included the letter of inquiry provided in Appendix A, was sent to 20 stroke nurses. The low response rate may be due to the method of recruitment (infrequency with checking emails) or due to scheduling conflicts and time restraints. While face-to-face interviews were the preferred method of data collection, due

to the busy schedules of the nurses on the unit, only two consultations were completed using this method while the other three were completed via telephone conversation.

Finally, the environmental scan invited four other major hospitals in the province of Newfoundland and Labrador to participate. To date, only one of these institutions has been available for contact, and ongoing measures are being taken to contact and consult with each of these healthcare institutions, either by phone or through email, which is included in Appendix B

4. Data Collection

For all consultations, data was collected by interview. The interview questions were different for management and registered nurses, mainly because of the differing reasons for conducting each consultation. Questions used for each type of interview are included in appendices C and D. The interview consisted of open and closed ended questions. The closed ended questions were used to discover if there was any previous knowledge or use of bladder and bowel training strategies on the unit. To collect data regarding potential design and implementation issues, open ended questions were used to give the participants an opportunity to express their opinions, voice concerns, and ask any questions that they may have.

One of the original consultations was planned to occur with the occupational therapist. Upon further evaluation, it was decided that this consultation was not necessary due to the nature of their involvement with the toileting regimes on the unit. Rather, it was hoped to include a consultation with the nurse educator for the stroke unit, but this has not be feasible at this point due to scheduling conflicts.

Prior to contacting health institutions for the environmental scan, I reviewed each health authority's website for any information about stroke care and policy. Once this proved to be an unsuccessful method of gathering information, I began contacting the institutions via telephone to obtain contact information for stroke unit managers or educators. If an email address was available, a letter of inquiry was sent explaining the practicum project and what information was needed (Appendix B). If the opportunity to speak directly to the manager was available the same information was explained through verbal conversation. If health care institutions are able to provide copies of policies, these will be retained for analysis. If data is collected through verbal conversation, I will be recording (in writing) the conversations as they are occurring. Since the environmental scans have provided very limited information to date, information on data collection methods will be updated as the environmental scan consultations occur.

5. Data Management and Analysis

Interview data is often viewed and analyzed as qualitative data (Polit & Beck, 2012). In this type of data collection method, analysis should begin at the same time as collection (Streubert & Carpenter, 2011). All consultations were audio recorded and then transcribed verbatim. Then, themes were formed using content analysis, and comparisons between consultations were completed using constant comparative method (Streubert & Carpenter, 2011). In this method, as data is collected, it is constantly compared to previous data, analyzing for themes, similarities, and differences. The same methodology will be utilized as information is collected for the environmental scan. A complete table of interview results can be found in Appendix F and G.

Once the interviews were transcribed verbatim, the recordings were deleted.

Electronic data, such as typed reports, were saved on a personal computer on a secure network. Any paper data were stored in a locked cabinet.

6. Ethical Considerations

According to the attached checklist (Appendix E), this project does not serve the purpose of "research", but rather "quality/evaluation", so a review by a health ethics board is not required. Prior to the consultations, the individuals were provided with a letter explaining the project and the reason for the consultation. The letter also stated confidentiality intentions, contact information was provided so participants could ask any questions or concerns. As well, the letter reinforced that the selected participants were not required to participate in the consultations, but also explained how their potential input will impact and improve the design and implementation of the project. For data security, the recordings collected during the interviews have been deleted. As well, no personal information was collected about the participants to ensure anonymity and confidentiality.

7. Results of the Consultations and Environmental Scan

Results have been divided into three categories: management consultations, nursing staff consultations, and environmental scan results. Common themes are identified throughout each category, and comparisons have been made both within the individual categories and amongst all three categories.

Management Consultations

One manager agreed to be interviewed for the consultation report. The goal of the consultation was to obtain information about current practices on the stroke unit and

potential barriers during the design and proposed implementation of the project. Through the consultation, it was discovered that currently there is no formalized bowel and bladder management protocol for patients on the unit, and that mainly "most of our toileting is one on need and demand of the patient". Therefore, there is a recognized need for this type of protocol, mainly to meet best practice guidelines. The participant stated that bladder and bowel training will benefit the patients and "may speed up discharge all around if there was something formalized". Prior to implementation of the project, education will be necessary for everyone involved, but no specific information was obtained about what type of education should be provided from the informant. The major theme of this consultation was identifying potential barriers to project design and implementation. Barriers identified included financial, uptake by staff, perceived increased workload, and availability of staff to deliver this type of program on an acute unit. Suggestions to overcome these barriers included providing education to increase uptake by staff and setting criteria for which patients would be candidates for the program, potentially lessening the overall workload and the number of patients requiring bladder and bowel training at one time. No suggestions or input was provided regarding the overall design of the guidelines.

Nursing Staff Consultations

An informative email requesting consultation for this project was sent to 20 nurses who work with stroke patients, and four agreed to participate in the consultation process. Along with these four stroke nurses, one nurse from the rehabilitation unit was included (recommended by rehabilitation unit manager) for a total of five registered nurses. The

interview consisted of a total of six questions, using both closed and open-ended questions that aimed to explore the educational needs of nurses and potential barriers for implementation of the program. Only one participant expressed that they had no previous knowledge of bowel and bladder management strategies, while others stated that "we have had patients come to our unit with bowel and bladder issues, so I do have, I guess, a limited amount of knowledge". All four of the stroke nurses agreed that bowel and bladder management strategies are not implemented formally on the unit; the rehabilitation unit did not have formal policy, but did try to implement bowel and bladder training. All participants agreed that education was needed prior to implementation of such strategies, but to varying degrees. One participant stated that "a little education would never hurt anyone, but, do I need it? Probably not. But, I wouldn't say no to having it." Two of the five participants felt that education is an extremely important aspect of stroke care, and it is in the best interest of the patients to ensure nursing staff are kept up to date on best practice.

When nursing staff participants were asked about the most effective way to deliver educational resources to nurses, results were varied. All participants agreed that an in-service, whether incorporated into an education day or the stroke course, would be beneficial and would reach the majority of nursing staff for little cost. Three of the five participants stated that some type of reference on the unit, such as posters, pamphlets, or a hot file, would be beneficial and would likely maintain the uptake of the initiative by nursing staff. Interestingly, one nurse added that e-learning modules definitely do not benefit staff saying that "when people do them, they don't actually do them", while another participant stated that e-learning would be a good way to deliver the education.

From these results, it appears that group-focused education and a resource manual for the nursing unit will be the most effective way to deliver the educational material.

Several important barriers to implementation and practice were identified by nursing staff. Many of these barriers were consistent with those identified by management and those identified in the literature review. Three major themes were identified; limited staff numbers, resistance to change, and acuity of the unit. Three of the five participants felt that the limited number of staff assigned to the stroke unit (two) and the reduced number of staff on the entire medicine unit by night (five as opposed to seven during dayshift) would pose as a barrier to implementation. Two of five participants felt that the acuity of the unit may leave limited time to focus on bladder and bowel management. As well, two participants also indicated that there is often a resistance to change by staff members, which could impede implementation. Other barriers identified included ensuring all staff received the same training, understanding what patients fit the criteria for the program, and communication issues (i.e. cognition and aphasia) between patient and nurse. As an advanced practice nurse, competencies such as leadership will help in overcoming resistance to change. An effective leader will be able to appropriately guide nursing staff to help with uptake, demonstrating the strengths and advantages of implementing such a program on the nursing unit.

Overall, the staff who participated in the consultations appeared enthusiastic and interested in the proposed project. All five participants stated that bowel and bladder management was needed for their particular unit, and that it would greatly benefit the patients and their quality of life. As one participant stated “it really consumes the patient. It’s something that can be fixed, it is really a major quality of life issue”. As well, one

participant indicated that many patients have the goal of not only regaining physical attributes prior to discharge, but also to leave the hospital fully continent. Therefore, it is the responsibility of nurses to aid the patient in meeting all or his/her goals.

Environmental Scan

The goal of the environmental scan is to obtain available guidelines and policies from other healthcare institutions in the province. Once this information is obtained, a decision will be made to either adapt one of the policies for use or create a new one for implementation at Western Health. Also, there is a potential to gather valuable information about education and implementation strategies used at other health care institutions through the environmental scan.

To date, I have only been able to make contact with one of four health care institutions. Multiple attempts, both through email and telephone, have occurred with no response. Despite this, I am still hopeful that in the coming weeks I will be able to achieve the objective of completing a thorough environmental scan and then report on the information obtained through it.

Healthcare Institution A reported that there is not a designated stroke unit and therefore there are no specific policies related to bowel and bladder management. Despite this, the contact from the institution did state that they are currently working on policies for stroke units in the emergency department and intensive care units, but nothing is planned for bowel and bladder training and this time.

8. Conclusion

Information from the consultations completed with management and nursing staff from the stroke unit at Western Health will greatly enhance the quality of the design and

proposed implementation of the practicum project. From the data analysis, it is clear that education for nursing staff is necessary prior to the implementation of bowel and bladder management strategies. One major discovery from the consultations was the type of education that would work best for nursing staff. Originally, it was planned to provide education to new stroke nurses during a two-day stroke course, and offer the same information to other stroke nurses through an e-learning module. But, through the consultations, it was evident that most nursing staff prefer small-group learning, such as an in-service or lunch-and-learn, with one nursing staff even stating that e-learning modules are not beneficial for staff. Therefore, the initial plan for design may have to be revisited and changed to better meet the learning needs of the nursing staff. Nursing staff also indicated that a resource to be left on the unit for reference would also be helpful, which was already a part of the original practicum plan.

Also, it was important to have an early understanding of the potential barriers for implementation, both from a management and nursing staff point of view. This information will be invaluable to overall design of the project, but especially to the adaptation or creation of guidelines. Specific information will have to be include about patient inclusion criteria and how to incorporate these new strategies into the everyday routine of the unit. As well, considerations will have to be taken in regards to limited numbers of staff, time management, and engaging and retaining staff on the uptake of the strategies. With this knowledge, solutions can be created to overcome these potential barriers before they actually occur. The environmental scan, once completed, will also be greatly beneficial in the decision to adapt pre-existing guidelines or to create specific guidelines to accurately meet the needs of nursing staff on the stroke unit at WH.

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Appendix A: Letter Requesting Consultation

Dear Colleague,

As part of the fulfillment of the requirements of my Master's degree, I am currently developing a standardized bowel and bladder training program and learning resource for stroke nurses at Western Health. You have been identified as a potential consultant for the development stages of this project. As a consultant, you will be requested to partake in a short (around 10 minute) interview discussing your thoughts, feelings, and educational needs around this type of project. Your responses will be used to develop the project to best meet the needs of the staff who will be involved in its proposed implementation and continued use.

Participation is completely voluntary. The interview will consist of 5-6 questions and answers will be audio-recorded. After the interview is transcribed, the recording will be permanently deleted. No demographic data or identifying features of any participant will be included in the transcription or final report of the consultations. Your confidentiality and anonymity is of utmost importance. The interview can be scheduled for a time and location that best suits your needs. If you are willing to participate in this short consultation, or have any further questions or concerns, please feel free to contact me at either 637-5000 ext. 6505 or email at gbillard@grenfell.mun.ca. I thank you in advance for your consideration and for your continued support in the betterment of stroke care at Western Health.

Sincerely, Gina Billard, BNRN

Appendix B:

Email of Inquiry

Dear Sir/Madam,

My name is Gina Billard and I am a Master of Nursing student at Memorial University of Newfoundland and Labrador. I am currently in the final stages of my degree and am in the process of developing a practicum project to fulfill the requirements of the degree.

For my practicum project, I have chosen to develop a standardized bowel and bladder training program along with an education resource for stroke nurses at Western Health. You have been identified as working closely with the stroke care program at your institution, and your help with the development of this project would be greatly appreciated. I am interested in learning about current policies and/or guidelines being used in other institutions in the province for management of bowel and bladder incontinence in stroke patients.

If you agree to assist with this inquiry, consent can be obtained by responding to this email. In your response, you can either attach a copy of your institutions current policy and/or guidelines, or, we can arrange a time for a brief telephone conversation to discuss what is currently in use. This conversation can also include a discussion about any issues and barriers encountered with the design, initiation, and ongoing implementation of the policy/guideline. If your institution does not currently implement any policy or guideline for incontinence in stroke patients, I would also be interested in hearing from you about why this is the case.

If you have any further questions, comments, concerns, or to consent to your involvement in this project, please feel free to email me at gbillard@grenfell.mun.ca, or you can call at (709) 637-5000 ext. 6505. Confidentiality and anonymity will be of utmost importance in this project, and no demographic data about you will be collected. Information regarding the institution will be collected and referred to as Health Care Institution A, B, C, etc.

I look forward to hearing from you. Thank you in advance for your consideration and your ongoing support and dedication to the improvement of stroke care in your institution and the province of Newfoundland and Labrador.

Sincerely,

Gina Billard, BNRN

MN Candidate, MUN.

Appendix C:

Interview Questions for Management

1. Does your unit currently utilize bowel and bladder management strategies?

2. If so, do you feel that these strategies are implemented consistently for all patients who require them?

3. If not, do you wish for these strategies to be implemented? If so, why?

4. Do you feel education for registered nurses is required prior to implementing these strategies?

5. What potential barriers are there/do you think there would be in implementing such strategies?

6. a) If such strategies exist, what particular ones are used? How do you identify what would work best for individual stroke patients?

6. b) What strategies would you like to see implemented on your unit? (What is your vision to meet best practice guidelines?)

7. Any further comments, questions, concerns, or tips for the design, implementation, and evaluation of such a project?

Appendix D:

Interview Questions for Nursing Staff

1. Do you have any previous knowledge of bowel and bladder management strategies for stroke patients?

2. Do you feel your unit currently utilizes any form of bowel and bladder management for stroke patients?

3. Do you feel you would require education prior to implementing bowel and bladder management strategies for your patients?

4. What type of education do you think would work best for registered nurses?

5. Are there any potential barriers that you foresee with implementing a standardized bowel and bladder management training program on your unit?

6. Do you think this type of training program is necessary for your unit?

Appendix E:
Health Research Ethics Authority Screening Tool

	Question	Yes	No
1.	Is the project funded by, or being submitted to, a research funding agency for a research grant or award that requires research ethics review	❒	✓
2.	Are there any local policies which require this project to undergo review by a Research Ethics Board?	❒	✓
	IF YES to either of the above, the project should be submitted to a Research Ethics Board. **IF NO** to both questions, continue to complete the checklist.	❒	❒
3.	Is the primary purpose of the project to contribute to the growing body of knowledge regarding health and/or health systems that are generally accessible through academic literature?	✓	❒
4.	Is the project designed to answer a specific research question or to test an explicit hypothesis?	❒	✓
5.	Does the project involve a comparison of multiple sites, control sites, and/or control groups?	❒	✓
6.	Is the project design and methodology adequate to support generalizations that go beyond the particular population the sample is being drawn from?	❒	✓
7.	Does the project impose any additional burdens on participants beyond what would be expected through a typically expected course of care or role expectations?	❒	✓
LINE A: SUBTOTAL Questions 3 through 7 = (Count the # of Yes responses)		1	
8.	Are many of the participants in the project also likely to be among those who might potentially benefit from the result of the project as it proceeds?	✓	❒
9.	Is the project intended to define a best practice within your organization or practice?	✓	❒
10.	Would the project still be done at your site, even if there were no opportunity to publish the results or if the results might not be applicable anywhere else?	✓	❒
11.	Does the statement of purpose of the project refer explicitly to the features of a particular program, Organization, or region, rather than using more general terminology such as rural vs. urban populations?	✓	❒
12.	Is the current project part of a continuous process of gathering or monitoring data within an organization?		✓
LINE B: SUBTOTAL Questions 8 through 12 = (Count the # of Yes responses)		4	

	SUMMARY **See Interpretation Below**		

Interpretation:

- If the sum of Line A is greater than Line B, the most probable purpose is **research**. The project should be submitted to an REB.
- If the sum of Line B is greater than Line A, the most probable purpose is **quality/evaluation**. Proceed with locally relevant process for ethics review (may not necessarily involve an REB).
- If the sums are equal, seek a second opinion to further explore whether the project should be classified as Research or as Quality and Evaluation.

These guidelines are used at Memorial University of Newfoundland and were adapted from ALBERTA RESEARCH ETHICS COMMUNITY CONSENSUS INITIATIVE (ARECCI). Further information can be found at: http://www.hrea.ca/Ethics-Review-Required.aspx.

Appendix F: Management Consultation Results

1. Does your unit currently utilize bowel and bladder management strategies?	Nothing formalized.
2. If not, do you wish for these strategies to be implemented?	Yes. Basically, patients are going to rehab and there is nothing established for their bowel and bladder control, it would be nice to have that done prior to them going. Something we do is remove foleys, nothing formalized though for toileting. May speed up discharge all around if there was something formalized.
3. Do you feel education for registered nurses is required prior to implementing these strategies?	Yeah, they will need some form of education, according to what it entails….will it even be feasible on the unit? They will need some type of education, whether formalized or tips on what you need to do to help stroke patients with their incontinence.
4. What potential barriers do you think there would be in implementing such strategies?	I guess barriers would be financial, cost to relieve staff for education if needed. Uptake, you know what it's like to implement something new, takes a while for all staff to uptake the idea. Some of the toileting could be a barrier, not have staff available for the increased workload.
5. What strategies would you like to see implemented on your unit? (What is your vision to meet best practice guidelines?)	I don't even know what the guidelines are right now to be honest. I have reviewed them, and I know there are specific processes, but I don't know of any standardized or formalized bowel/bladder programs
6. Any further comments?	It would be nice to see it implemented, it is best practice and would help to get an accredited stroke unit, since a formalized program should be in place. Most of our toileting is done on need and demand of the patient. Criteria would need to be in place with what patients would be candidates for the toileting program. If it is best practice,

	something will have to be implemented.

Appendix G: Nursing Staff Consultation Results

1. Do you have any previous knowledge of bowel and bladder management strategies for stroke patients?	-No, very little. -The only thing I know is about is sometimes will do sennokot and colace together, and that's all fine and good, but the problem is once they go on this and start getting regular bowel movements, they don't seem to come off of it until they start having a lot of loose stool. Should be used more as a strategy, like setting regular times for people, and using medications only if there is no bowel movement for 2 or 3 days. -Yes, I do. We have had patients come to our unit with bowel and bladder issues, so I do have, I guess, a limited amount of knowledge. -Yes. So, working on a stroke unit, usually with our bladder and bowels, we try to put each client on a certain regime. So, with each patient we take steps to ensure they are toileted so they can move their bowels or retrain their bladder. Oftentimes, with stroke they lose control of their bladder and bowels so it is important to get that back as soon as you can. -Yes.
2. Do you feel your unit currently utilizes any form of bowel and bladder management for stroke patients?	-I don't think so. -No policies about it. I don't believe there is any formal policy in place. -We do, but only to a small degree because

	by the time they come here, their bowel and bladder issues have been resolved most of the time, but occasionally we do get the patient that may come with a catheter and then we start the process of bladder training. We don't see as much of a bowel training issue here, mostly bladder. -On our unit we try to go up probably every 2 hours unless the client rings out themselves to go to the bathroom. We see if the patient needs to use the bathroom. And we find with their bowels, especially if they haven't moved their bowels, we will talk with the physician to have medications in place so that it gets moving again. For a lot of people, concerning their bladder control, usually, it will come back, say in 3 or 4 ays once the stroke resolves, like with a bleed, they will gain that back. -No.
3. Do you feel you would require education prior to implementing bowel and bladder management strategies for your patients?	-Yes, I think so. -A little education would never hurt anyone, but, do I need it? Probably not. But I wouldn't say no to having it. -I would say yes to that. Mostly because there is always new methods and strategies and whatnot, it's always good to have reinforcement that you are doing the correct thing or strategy. -Absolutely. Any education that we get with our stroke patients helps us. But right now I feel like with our stroke education program there could be more for us in regards to bladder and bowel continence. A lot of that has to do with time and acuity of the unit. So, if we had a program that was in place that was specifically for stroke unit it would help us and our clients as well. -Yes.

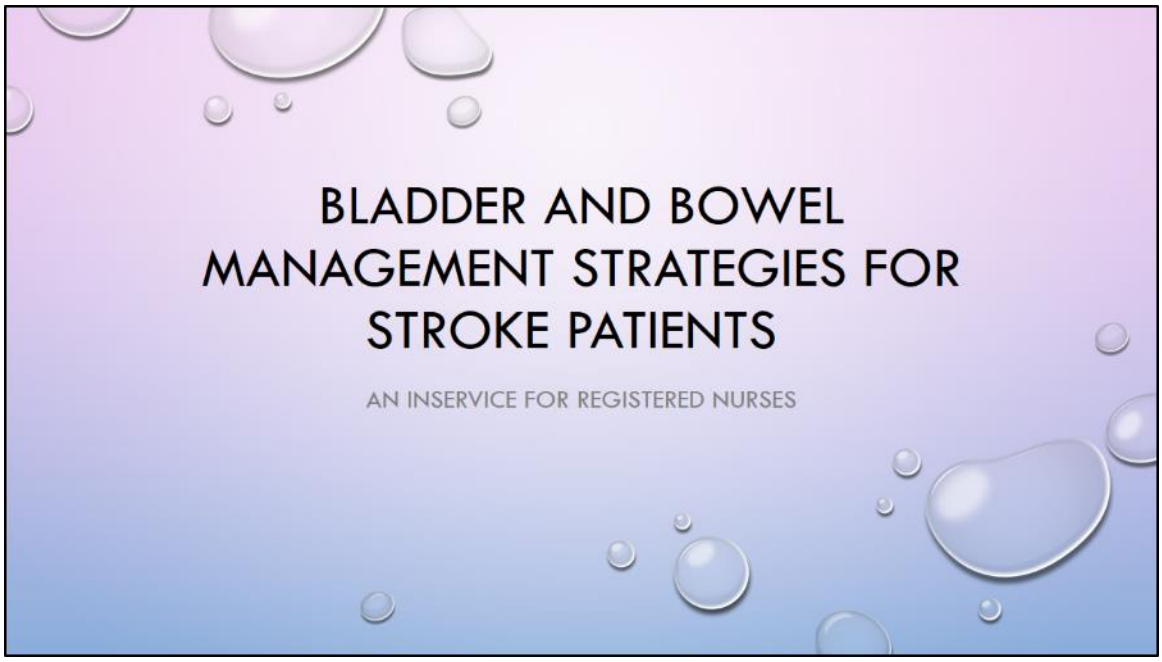
4. What type of education do you think would work best for registered nurses?	-Focus group, or an education day. Wouldn't say e-learning (when people do them they don't actually do them). Or, a ten minute bullet session to explain a new policy. Education day is only once a year, but if you could tap into that it would be good. -Posters in the conference room, then we can always refer to it. Make a hot file of it. A one day seminar, or something over a lunch break. Something that could be done that wouldn't cost a lot of money to make sure it gets implemented. -I think pamphlets work well and I do think e-learning works well. -For use, I think if we could sit down and discuss with the educator what we feel as a team would work best for our unit, every hospital is different, so not everywhere is going to work the same. So we have a designated stroke ward, making sure that with everything else we do throughout the day there are specific times that the patient is toileted properly. -How to incorporate the training into a routine. A lot of times there are a lot of acute patients, it can get really busy on the floor, and you lose track of implementing bowel and bladder regimes.
5. Are there any potential barriers that you foresee with implementing a standardized bowel and bladder management training program on your unit?	-Education, if only half the staff would be trained in it. Needs to be fully trained staff on the unit to make such a big change work. Resistance to change by staff, may not be interested. -There's always doctors that won't go along with it, and nurses will say they will be fine in a few days. More so personalities are the issue, the idea is definitely needed. -The only type of barrier I would see would

	be the type of stroke or the type of damage –some bowels and bladders cannot be retrained. Another thing as well, obviously, if your implementing a training program, you got to be accessible to toilet every 2 hours or do the bowel regime, so that requires staff. So, staffing may be a barrier, there is a limited number of staff here after midnight. -Yes. The communication barrier is always there between the stroke client and the registered nurse. You have to get past those. And also the time on the unit and the acuity. Because even though the 2 RNs are definitely needed in our stroke unit, it always doesn't work that way if there is more going on, they have to help out in the other unit. So just time, having the time, and making sure time is allotted for each client to have that proper training for their bowels or bladder. -The acuity of the patients and how many patients you have in the run of the day. Every patient workload is different.
6. Do you think this type of training program is necessary for your unit?	-It would be beneficial to the patients for sure, a lot of times there regimens don't happen until the patient goes to a rehab unit. Doesn't happen until everything else is under control. Being able to manage continence is one of the most important parts of the patient's life, and it should be a priority, but we don't do it. -Definitely. It really consumes the patient. It's something that can be easily fixed, it is really a major quality of life issue. If we can do something as easy as fix this problem, it makes a big change in their lives. -It is because along with our patients physical goals it is also a goal to be

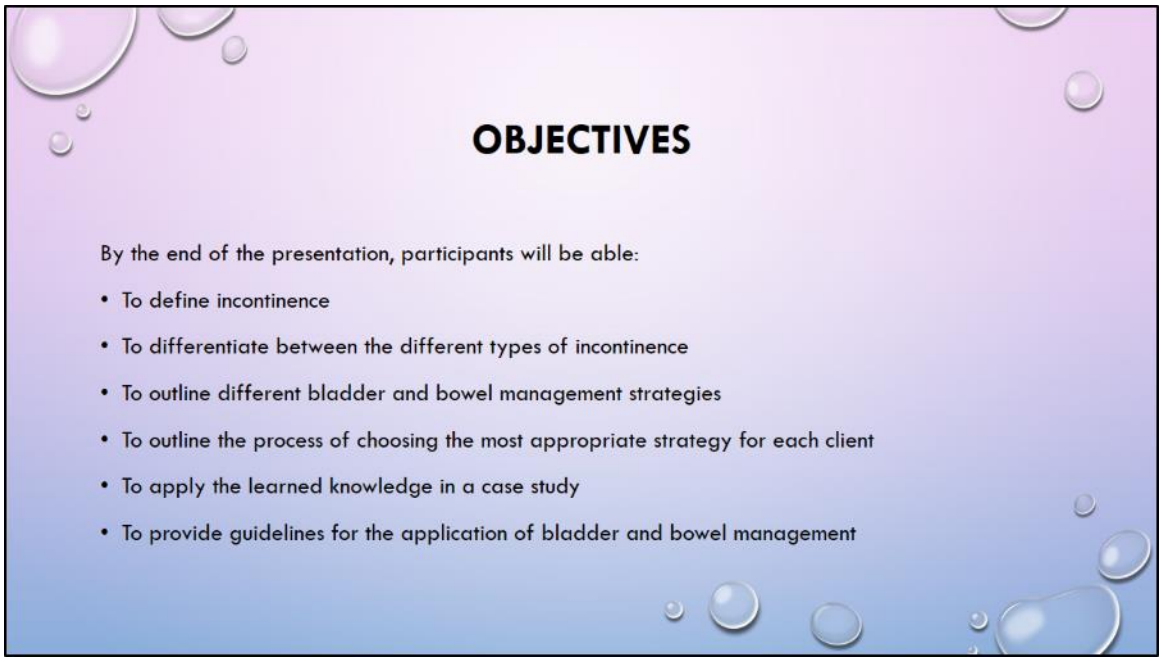
	discharged fully continent. -Yes, absolutely. I think if everyone's working on the same page for the client together, I think the client will benefit. As a whole, us as a staff, together we can standardize what is expected of us and the client, and the client will do better. -Yes.

Appendix C

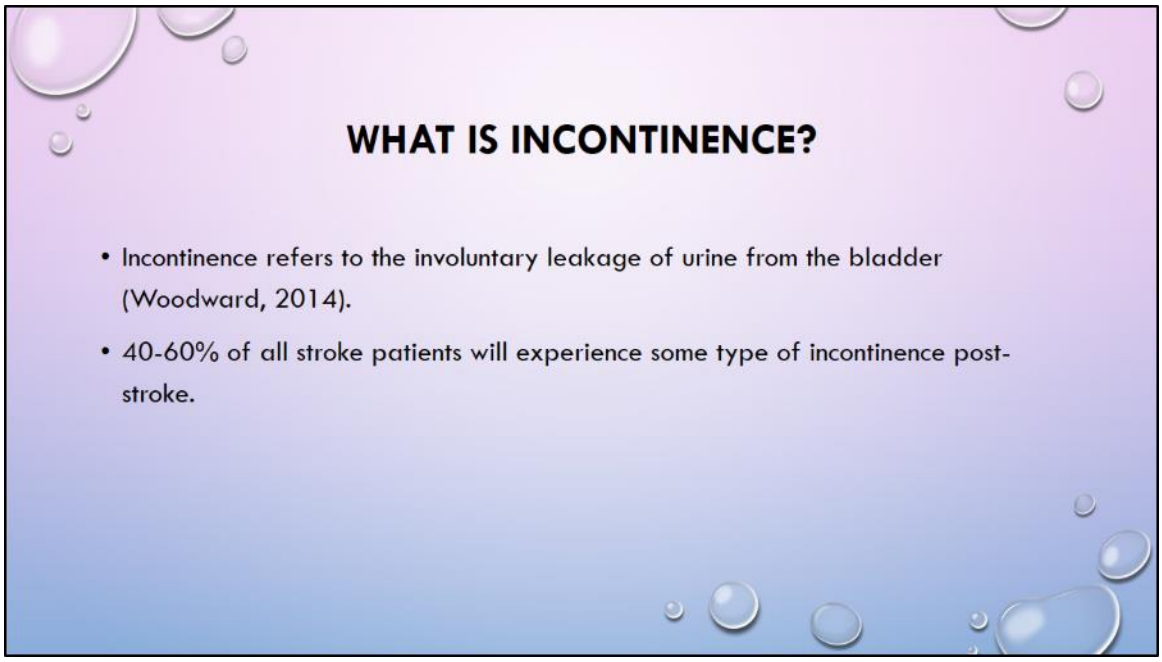
Resource: Inservice



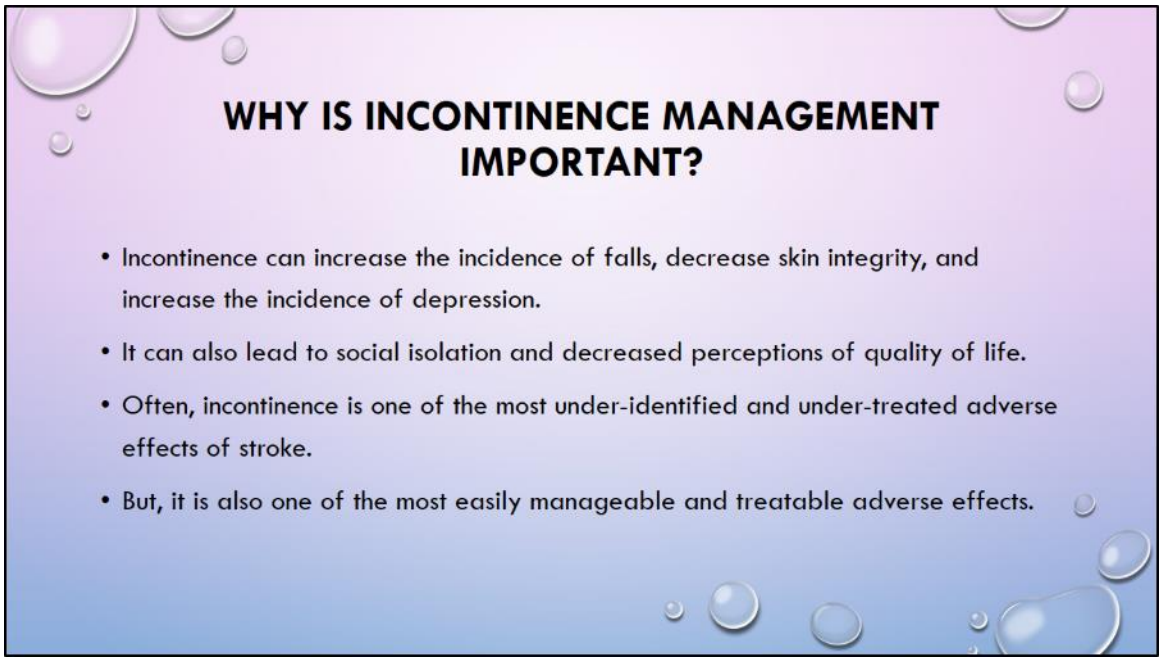
Introduction Slide



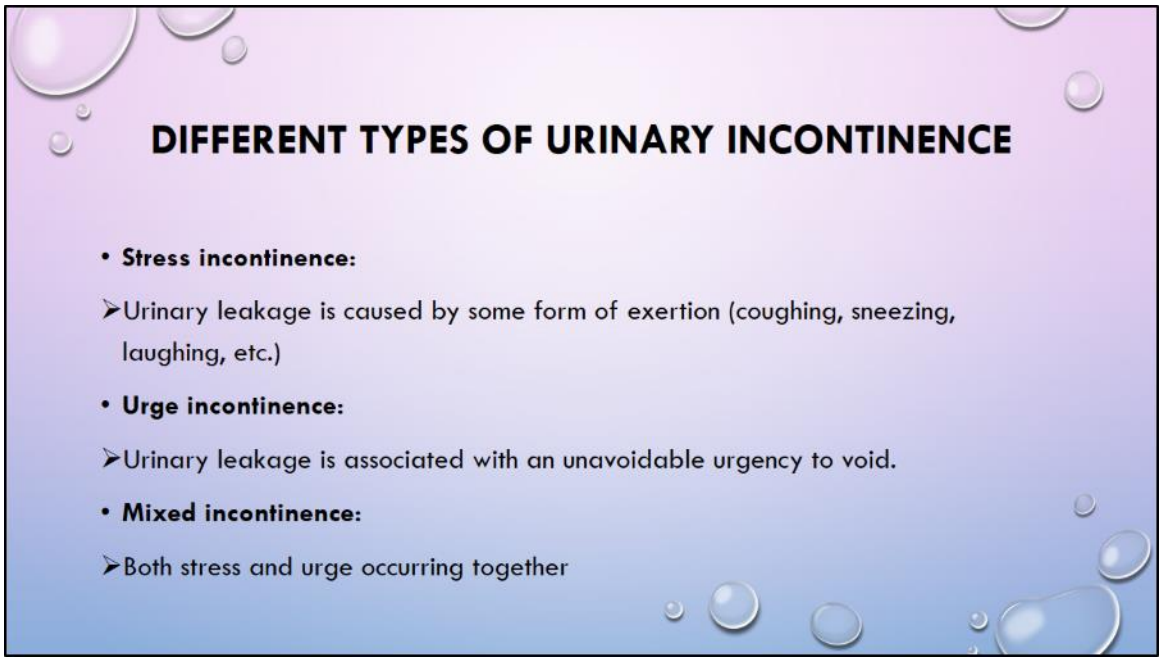
Objectives of presentation



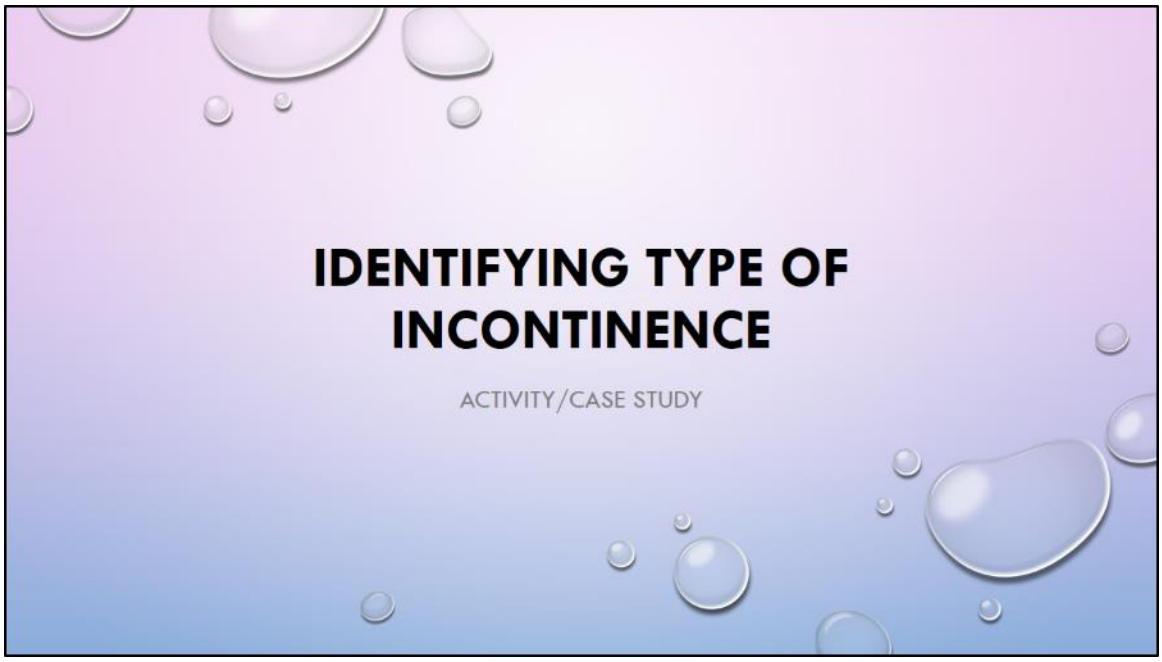
Incontinence can be related to urinary or bowels (fecal).
40-60% of stroke patients will experience urinary incontinence during the acute phase of their hospital admission. During rehab, this is further reduced to 25%, and 15% of all stroke patients remain incontinent upon discharge, whether that be to home or a long-term care facility.
56% of stroke patients are affected by bowel incontinence at some point, and 60% are affected by constipation.



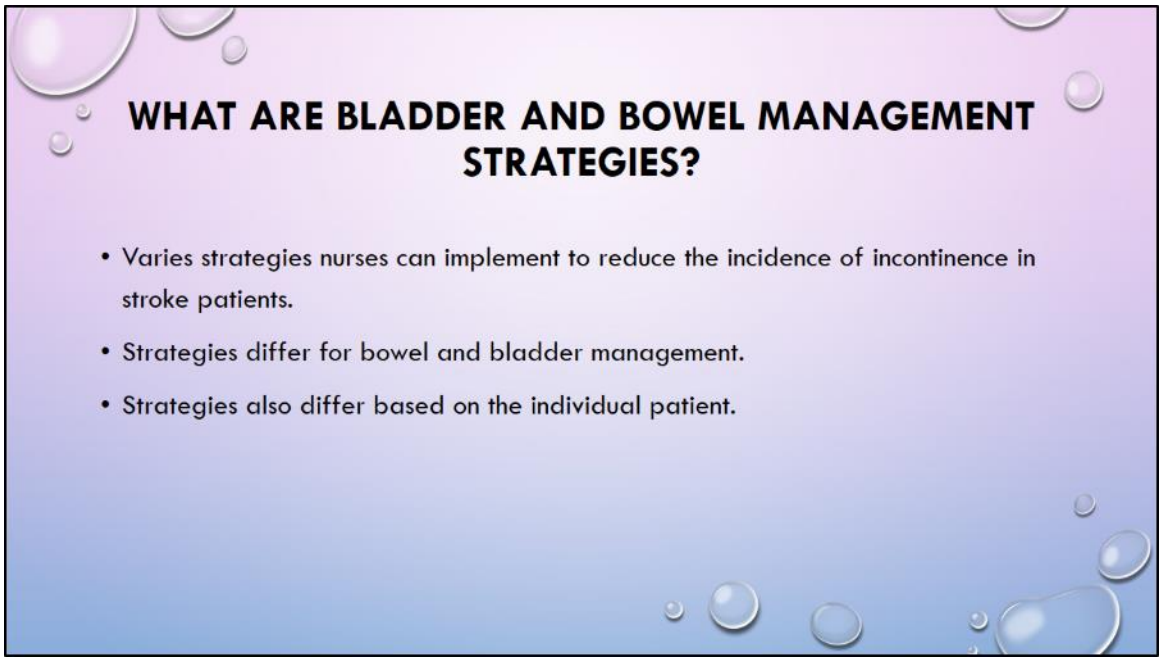
All of these adverse effects increase the incidence of re-admission post-discharge.
So, if incontinence is easily managed and treatable, why are we not more proactive in it?
What are some reasons incontinence is placed on the “back-burner” with stroke care?



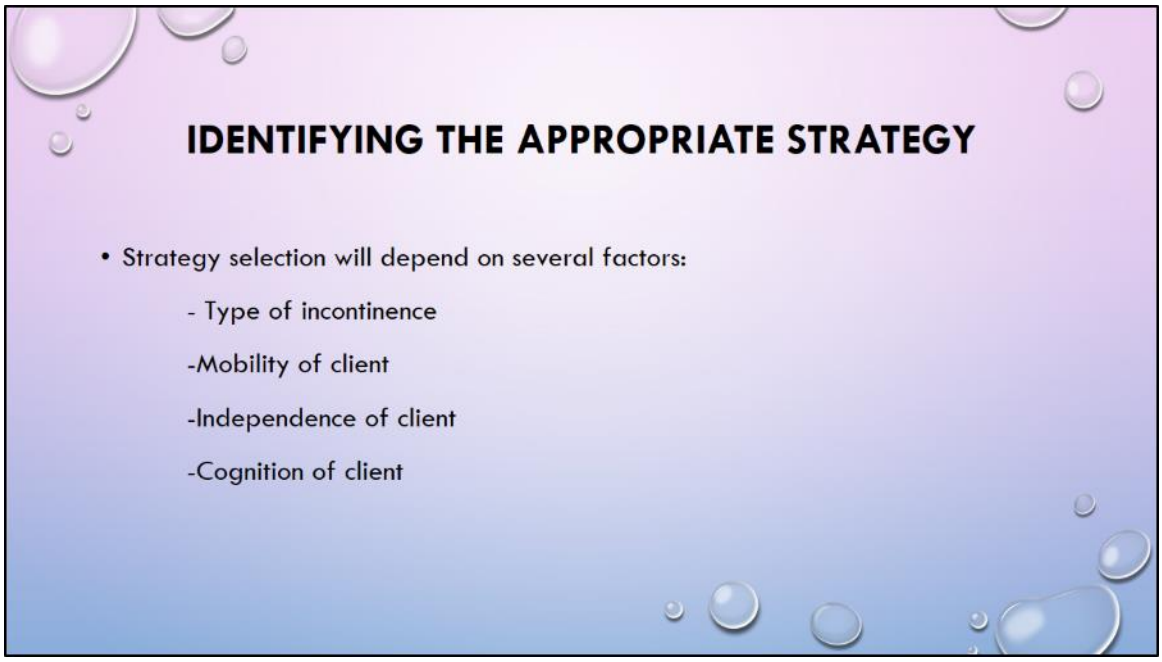
It is important to understand which type of incontinence your patient is experiencing, as it may influence the bladder strategy you choose.
Use your assessment skills to determine the type of incontinence! Ask the patient if they often have to wake throughout the night to void, how often throughout the day they void, if they are always rushing to the washroom with no warning, and if they feel as if they are able to empty their bladder completely with each void.



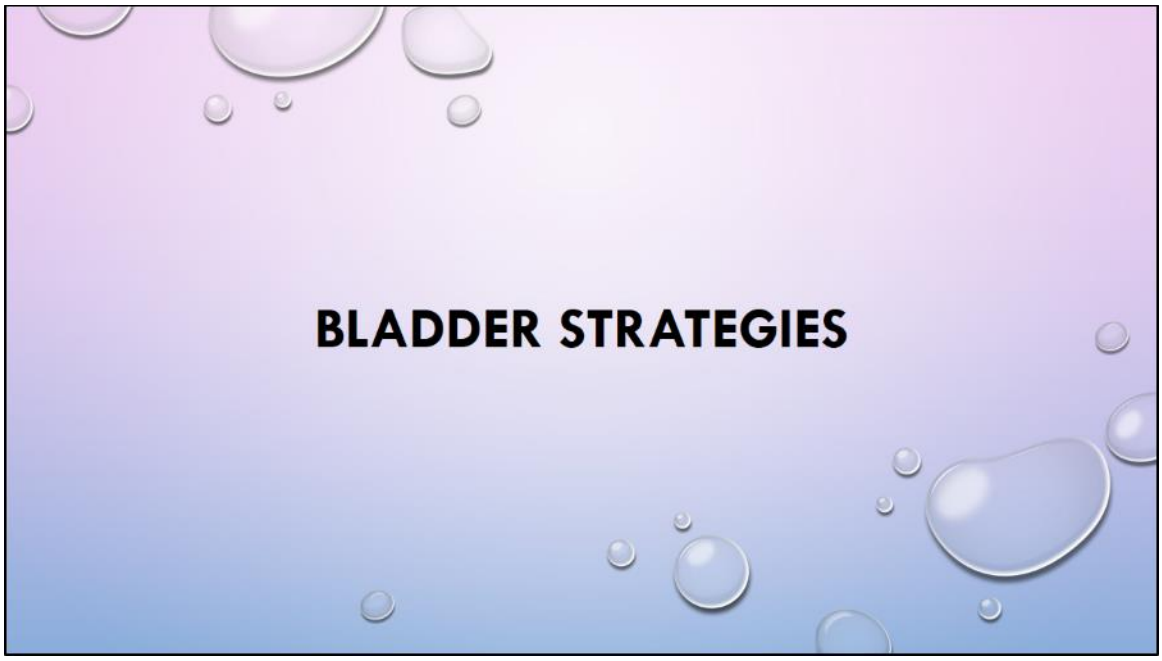
**Hand out activity. Give 5-10 minutes to work through, then discuss.



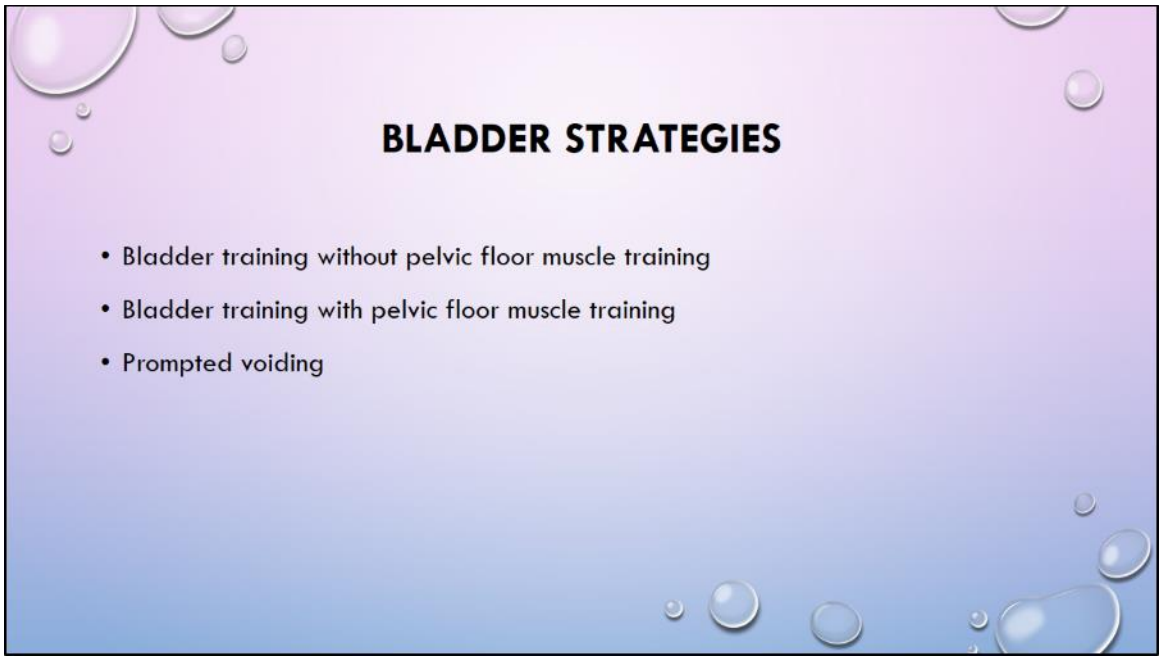
Easy to implement, following a step-by-step decision making guide.



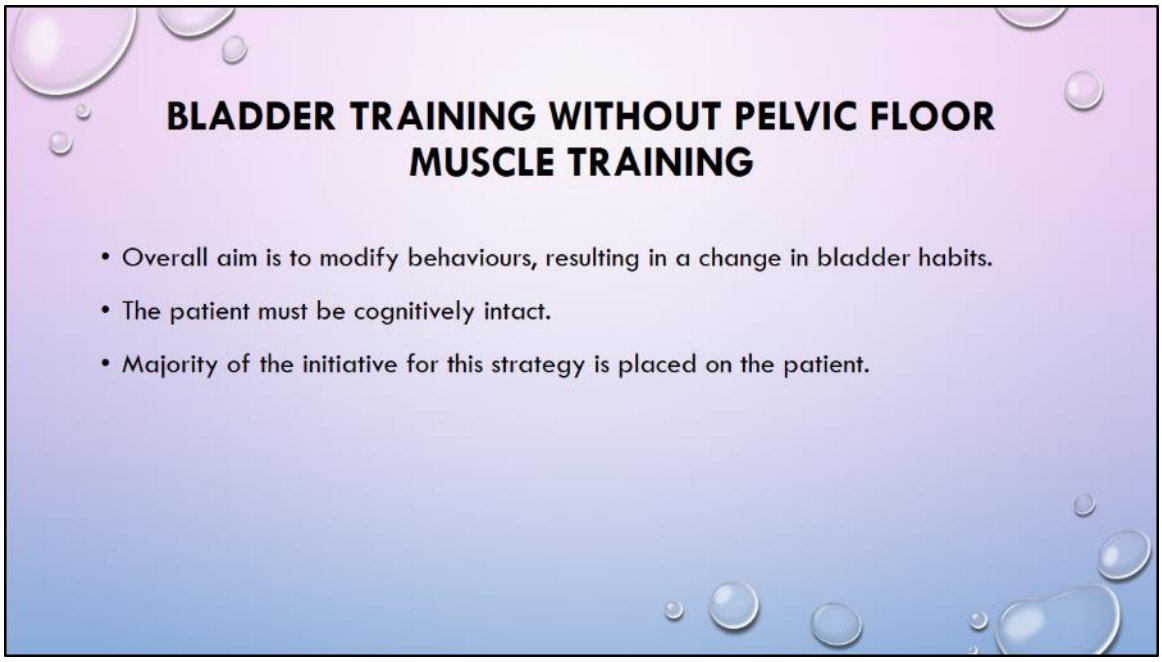
Important to utilize nursing assessment skills to identify any difficulties the patient may have, restricting them in participating.
It is important to realize that not all patients will be candidates for bowel and bladder management strategies.



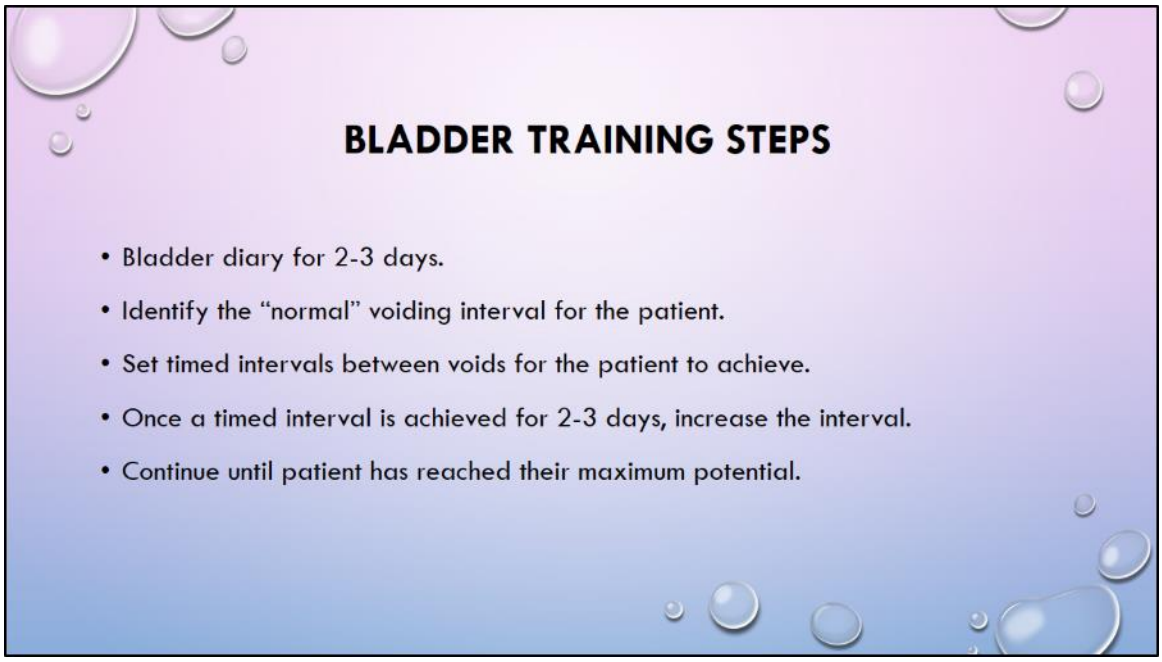
Introductory slides to bladder strategies.



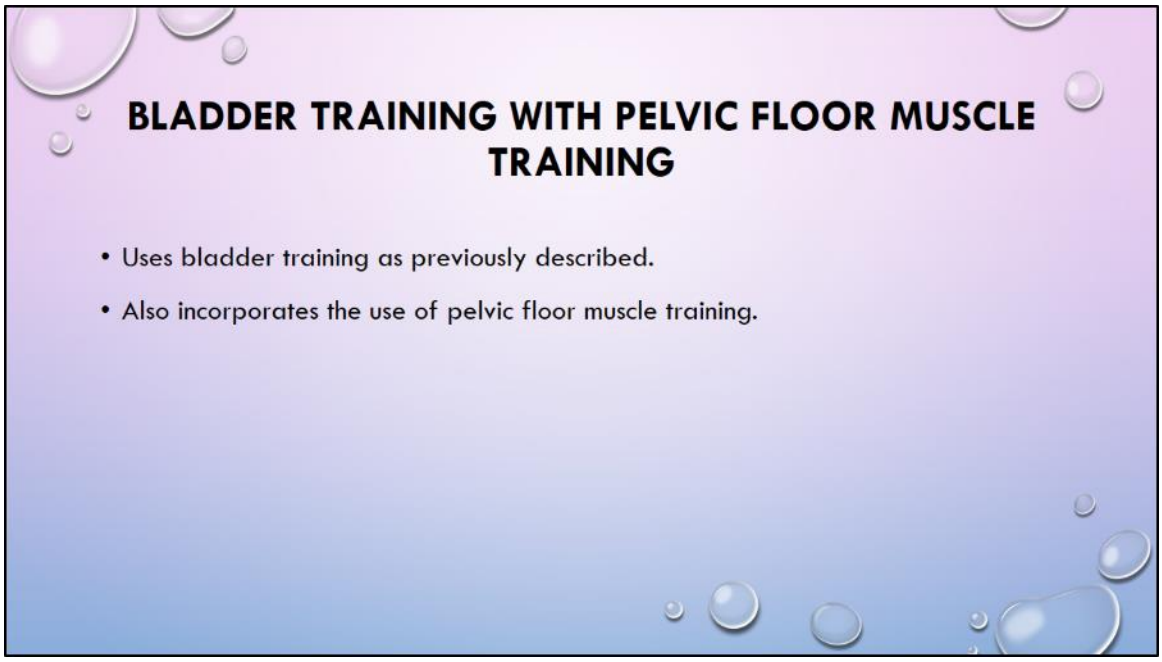
Each of these strategies will be individually discussed.



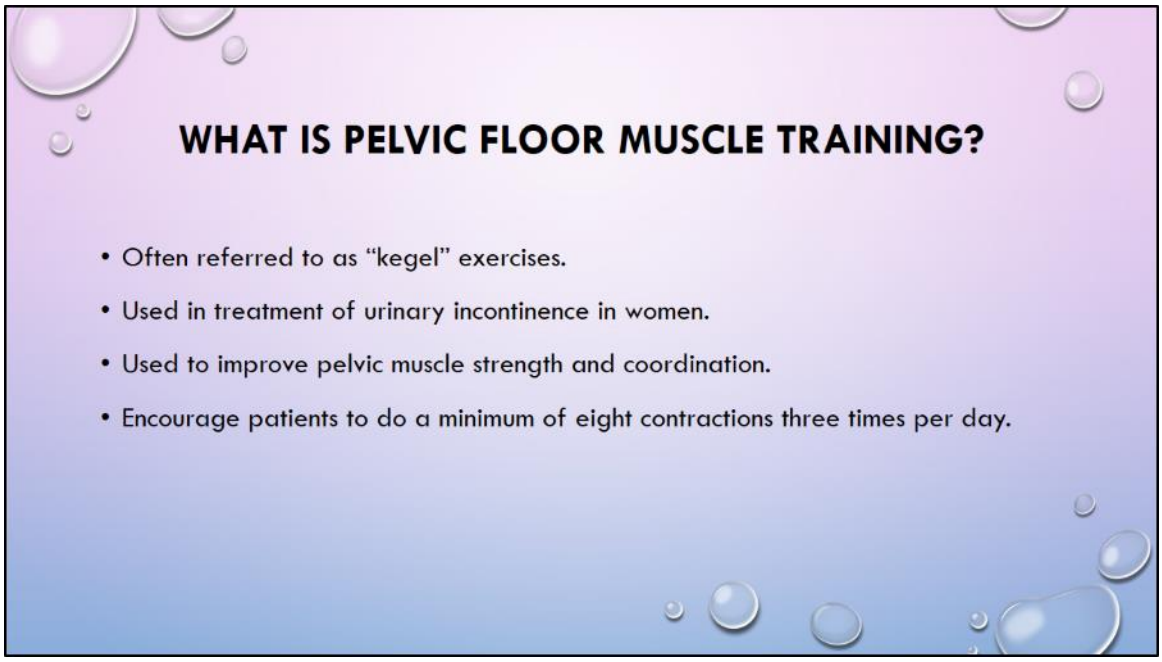
For this strategy, the patient must not be confused and be able to ambulate (with minimal assistance) to the washroom.
The patient is responsible for keeping track of intervals between voiding, and for increasing the intervals when necessary.
Most useful for a patient with urge incontinence.



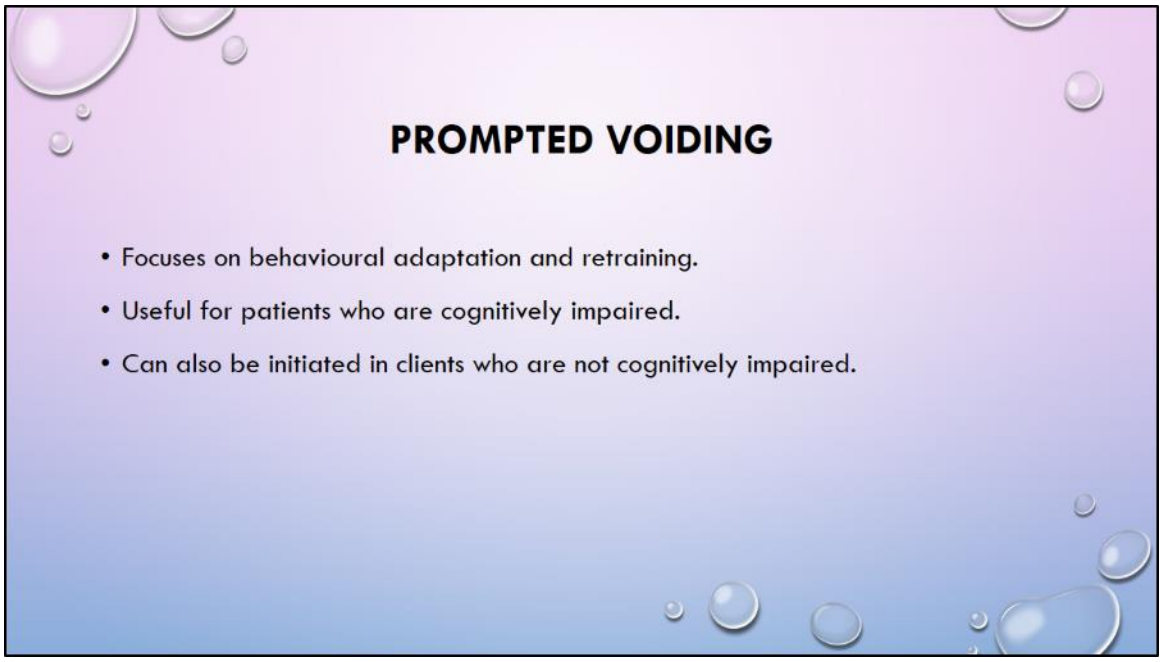
-The bladder diary is a record of the frequency of voids, and the total number of times the patient was incontinent over a 2-3 day period.
-Identifying the "normal" voiding interval is essential to a positive outcome. It is the starting point for creating new voiding intervals for the patient. For example, if the normal interval for the patient is 45 minutes, start the new interval at around one hour between voids. If the patient can only go 50 minutes, re-adjust, this is still an improvement!
-After 2-3 days on the new interval (one hour), increase the interval by 15-30 minutes, and maintain this interval for 2-3 days.
-Keep repeating this pattern until the patient reaches their maximum. Remember, this will be different for each patient! As well, do not try and get patients to retain urine for too long. An interval of 2-3 hours should be the ultimate goal for most patients.



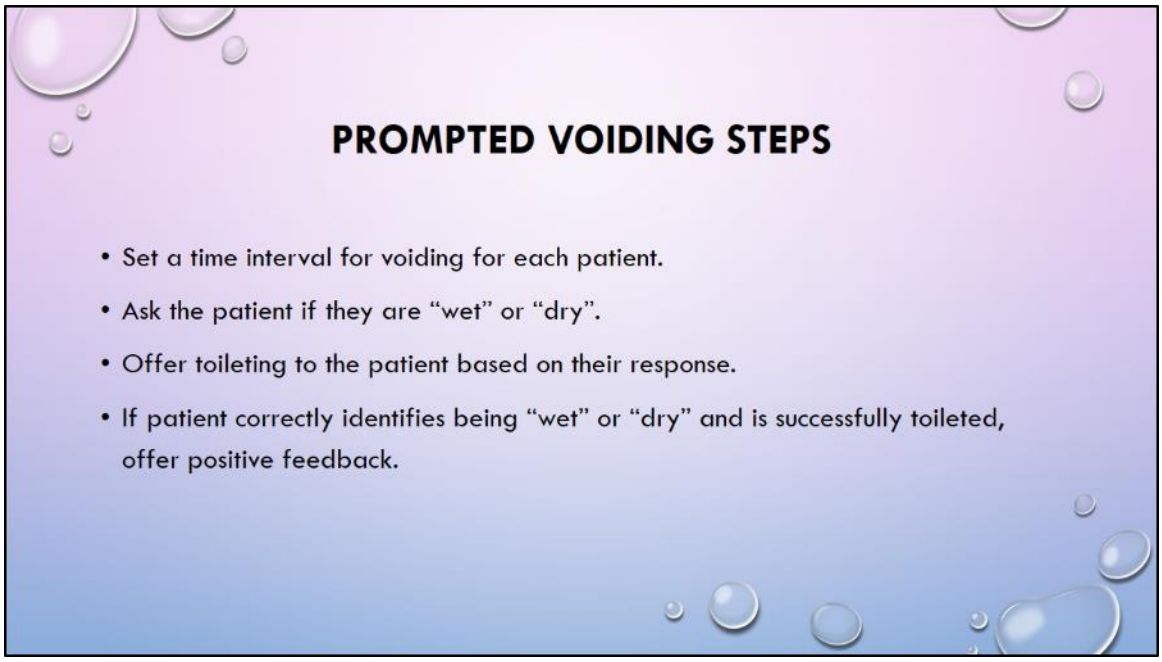
This is most beneficial for patients with stress incontinence.



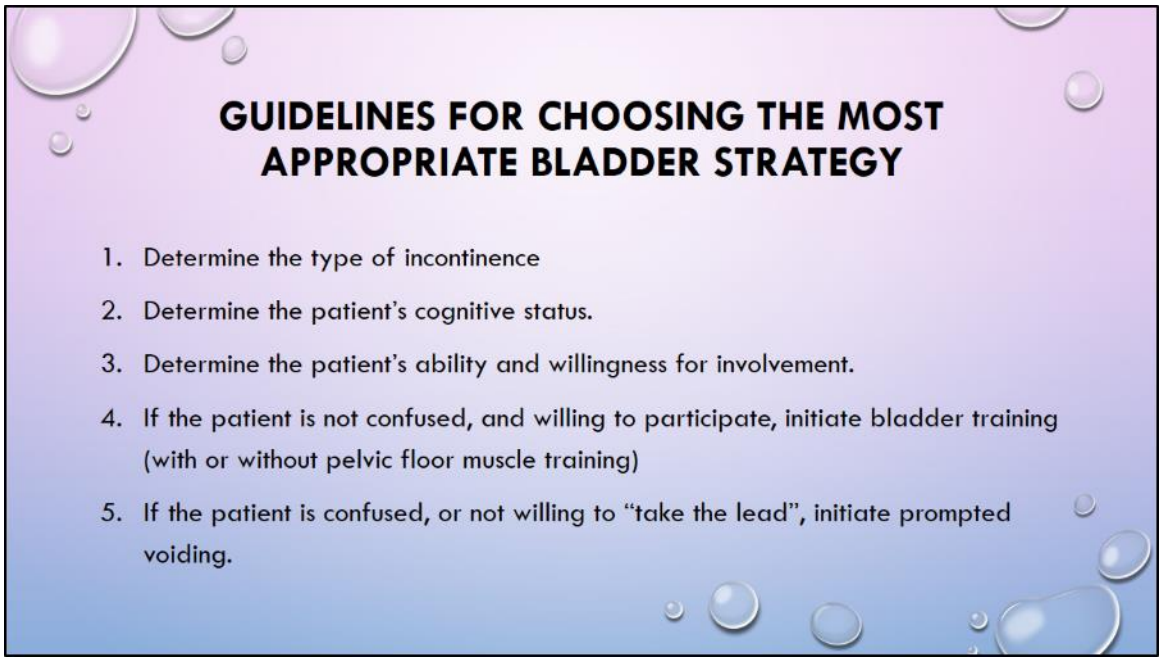
Involves the tightening and relaxing of the pelvic floor muscle.
Used only in women.
Goal is to be able to "hold" urine for longer periods of time.
Most useful with stress incontinence.
Often used in conjunction with bladder training. Follow previous steps of bladder training while incorporating kegel exercises as described.



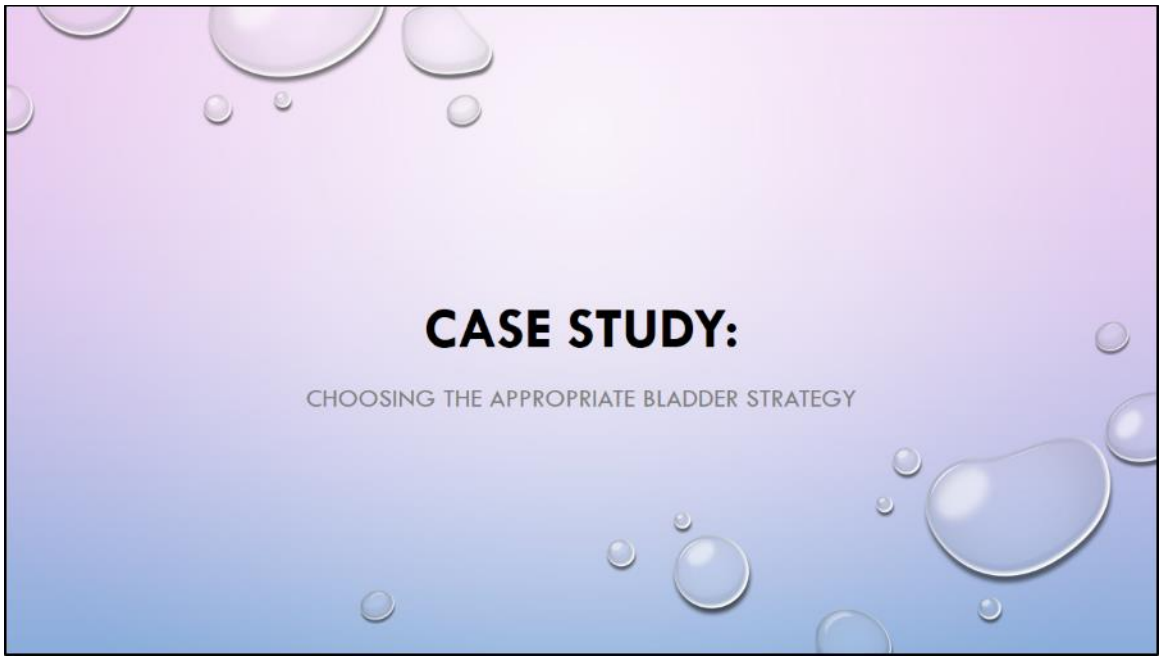
Mainly used in confused patients.
Also can be initiated if patients are unable to fully use bladder training on their own, or if they do not wish to utilize bladder training because of the increased responsibility on the patient.



For example, a good interval to start with for most patients is every 2 hours.
Overall goal is to increase continence and begin the self-initiation process of toileting. This is the reasoning for positive feedback.
If patient has already voided, provide incontinence care, and remind patient of the importance of alerting nursing staff when they need to use the washroom.
If patient is dry and able to ambulate, assist them to the washroom to attempt to void. If patient is unable to ambulate, utilize a bedpan or commode, whichever the patient prefers.
With time, the patient may begin to identify the need to void and start to self-initiate the request for toileting. This is way reminders and feedback are of utmost importance. Repetition is key!!

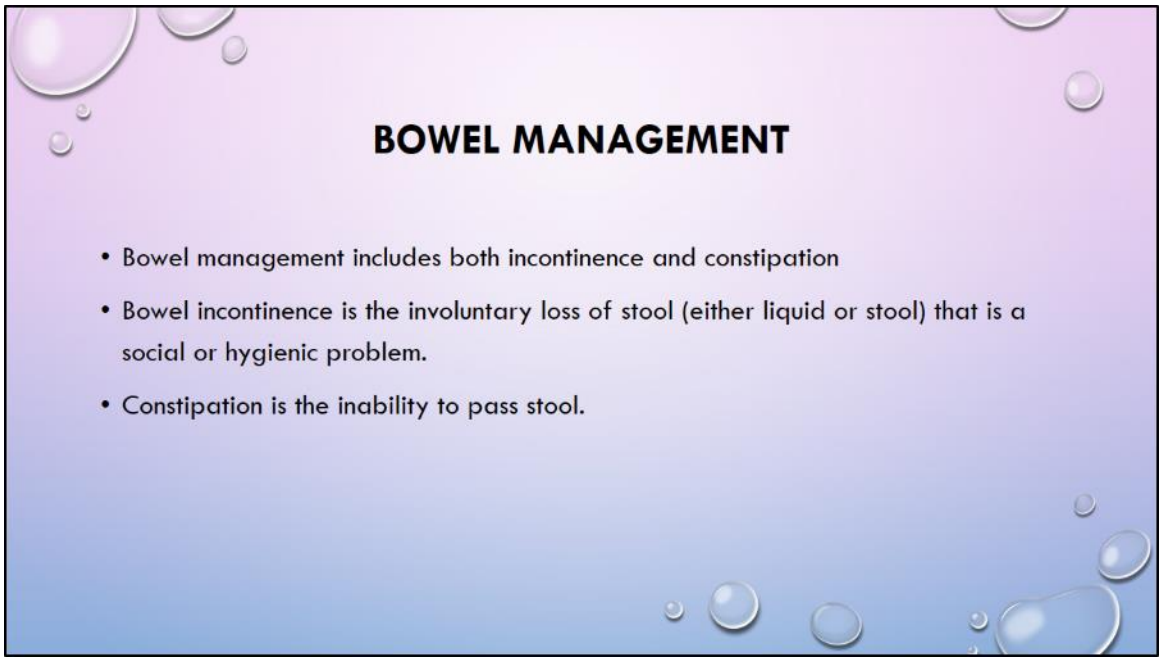


A flow chart will be available to aide in decision making and reference. This will be placed on your unit along with a resource manual that outlines the different type of strategies.

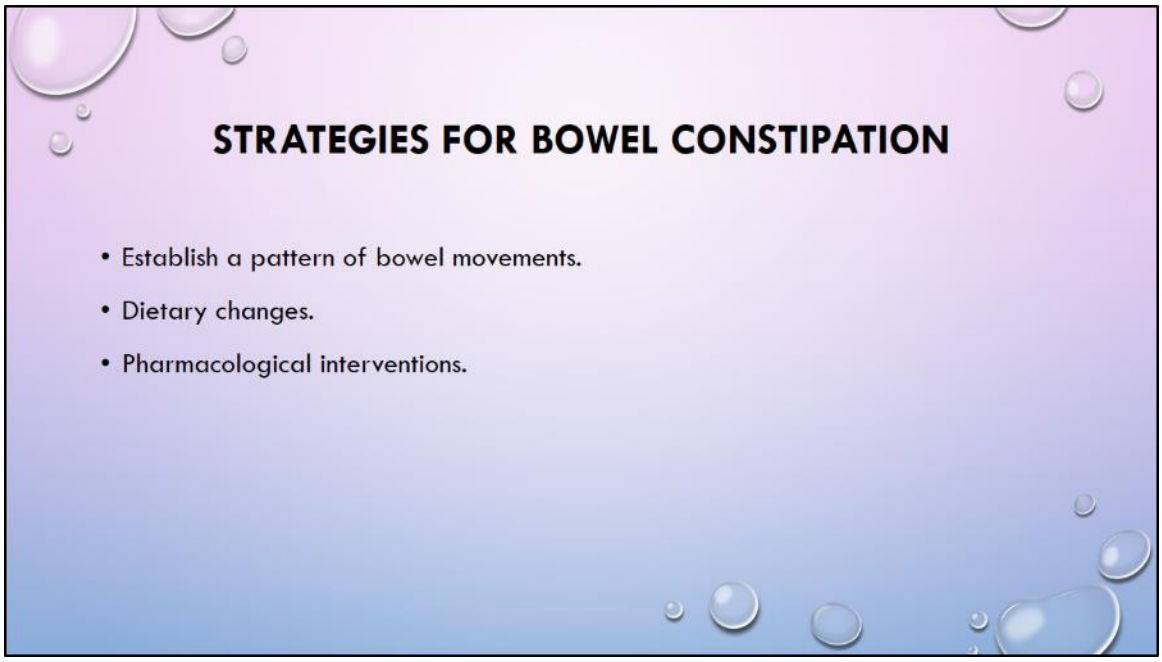


**Go through case study. Allow 5-10 mins for individual/group work. Discuss answers.

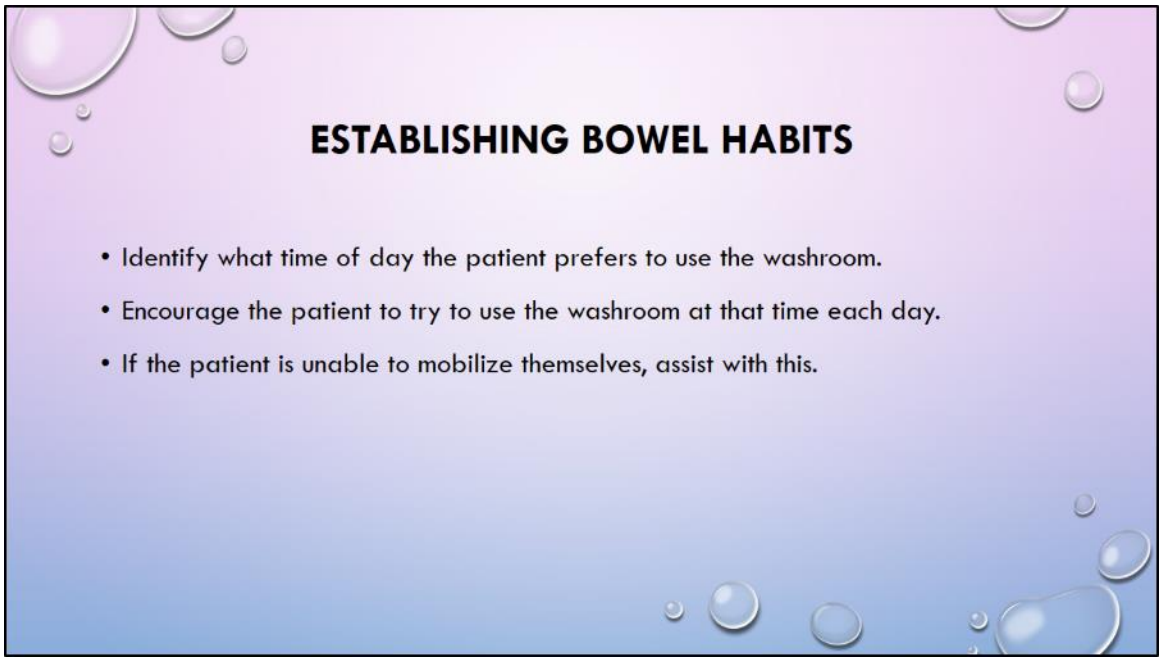
Introduction to bowel strategy slides.



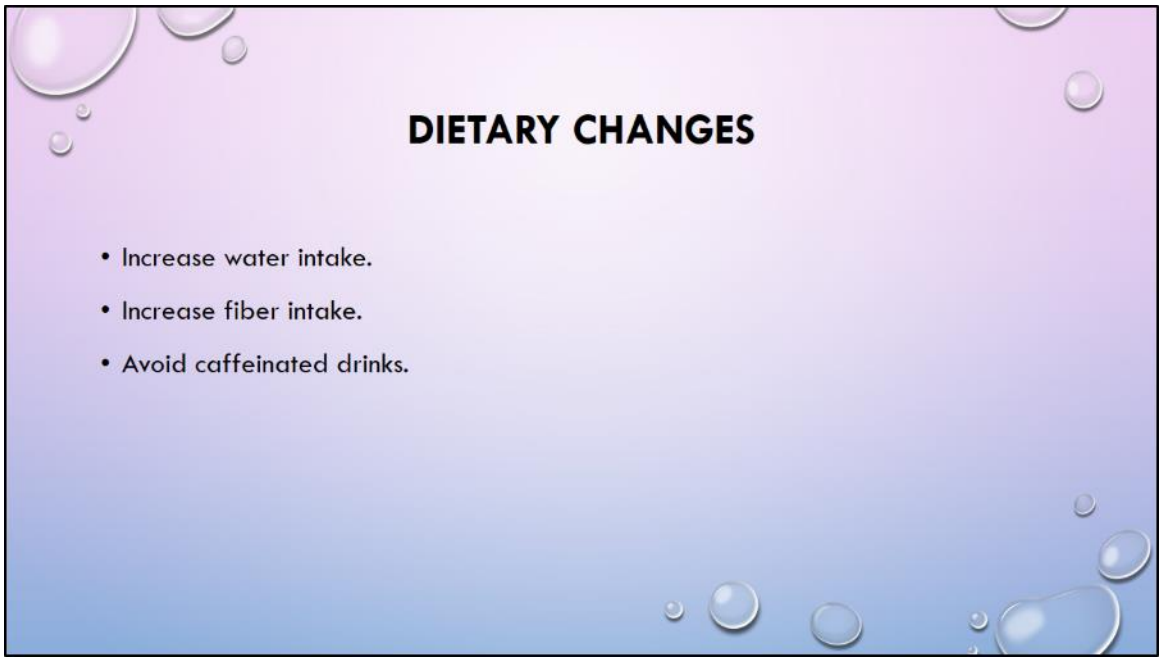
While constipation is different from incontinence, it is still a prevalent issue amongst stroke patients, and there are strategies that nurses can initiate or advocate for to help relieve this adverse effect of stroke.
Like urinary incontinence, bowel incontinence can also lead to falls, impaired skin integrity, and depression.



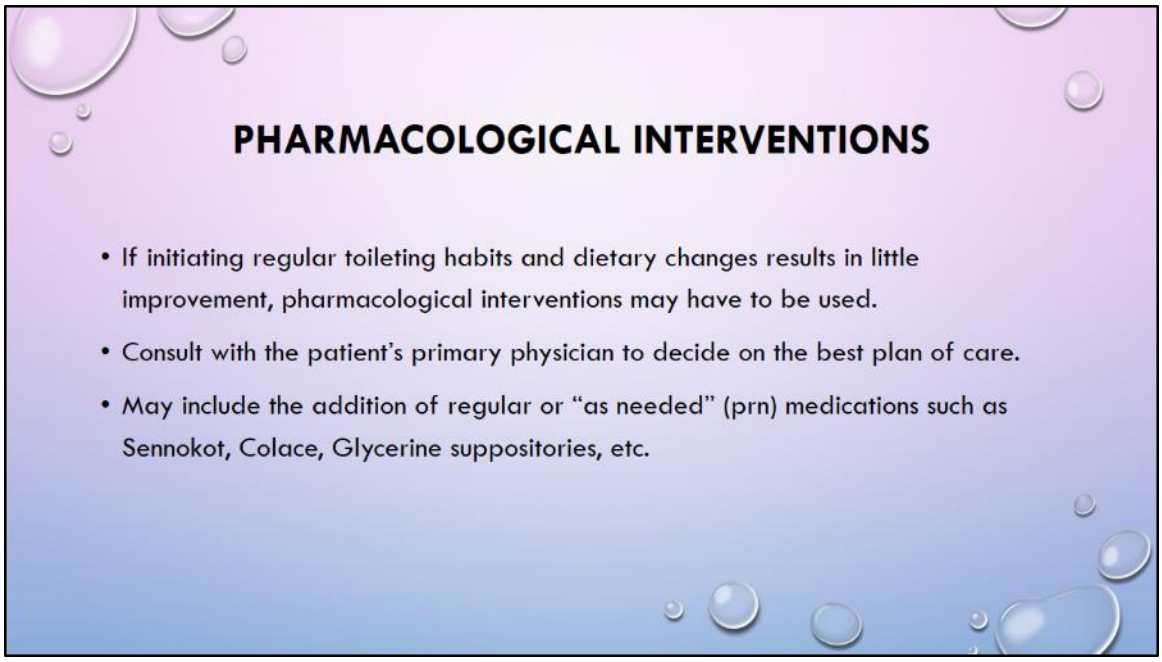
Each of these will now be discussed individually.



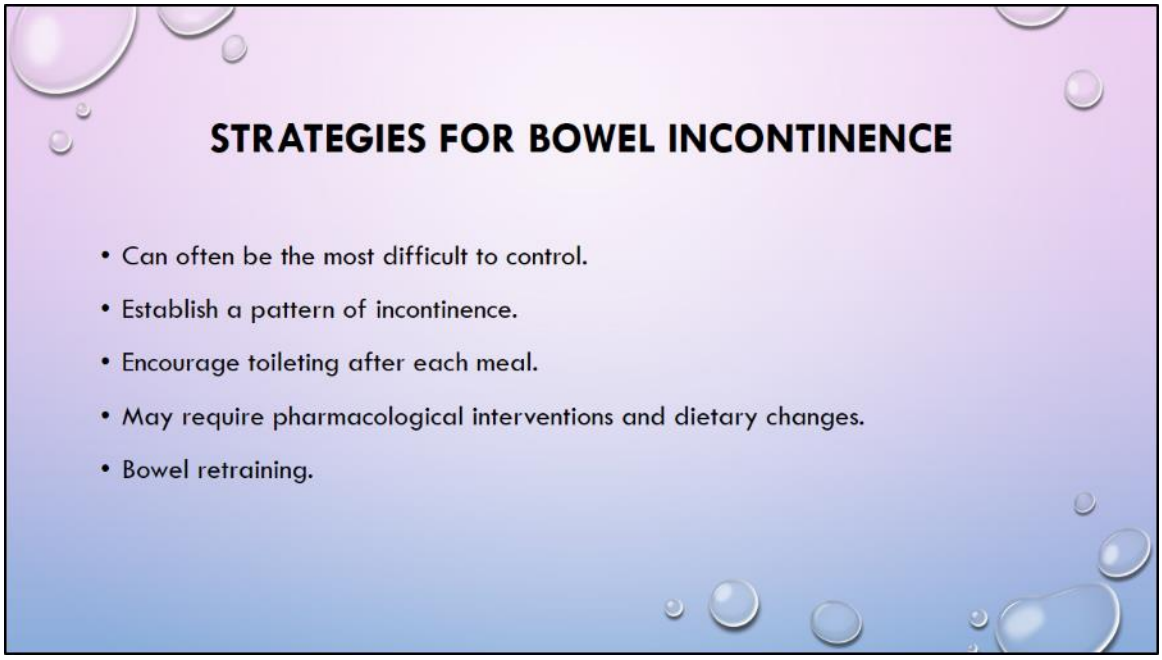
Usually, this is a pattern of morning vs. evening. Morning is usually preferred and generates the most success.
Similar to the “bladder diary” maintaining a record of bowel habits will help to establish this.
In cases of extreme constipation, inquire with the patient to identify their bowel habits prior to stroke. Remember, not all patients will have a bowel movement every day.



Initiating these dietary habits along with a regular toileting schedule will increase the probability of results. A dietician referral may be necessary to implement extra fiber in the patient's diet. Increasing water intake is an easy intervention for nurses to initiate, as long as the patient is not restricted fluids for another medical reason.



Stroke care is a team effort! Physicians, dieticians, OT, and PT may all need to be involved to make toileting improvements for patients. As the primary nurse, it is your responsibility to act as an advocate and bring forward these issues to other members of the stroke care team.

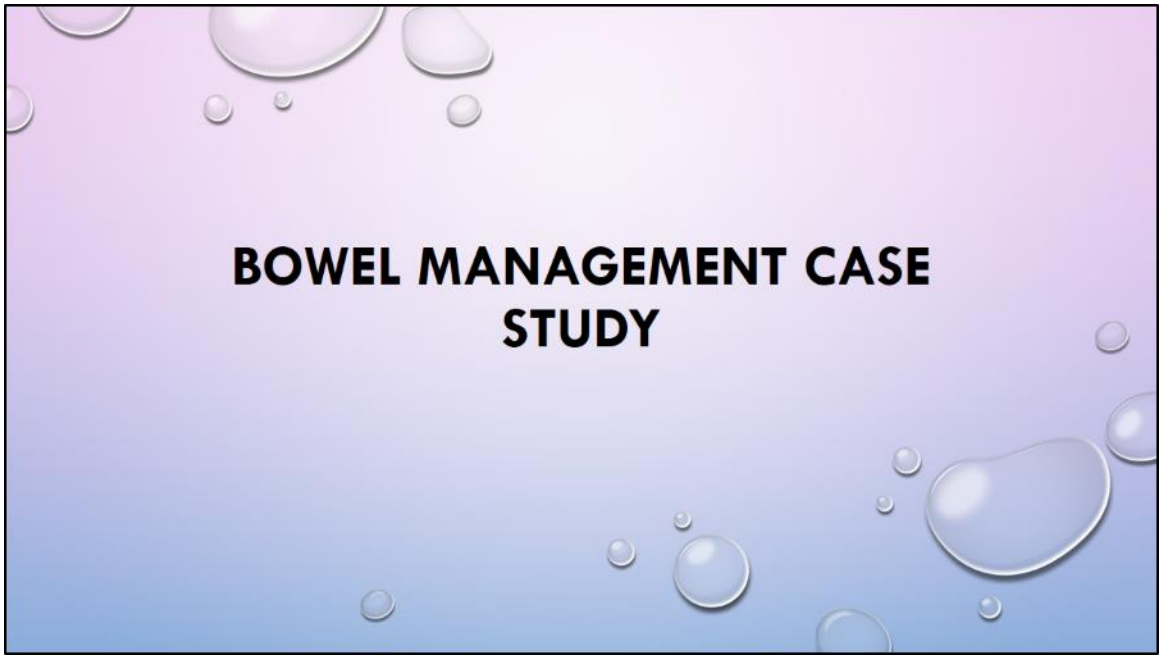


Again, establishing a pattern is key. If the patient is normally incontinent early in the morning, attempt to toilet at this time.

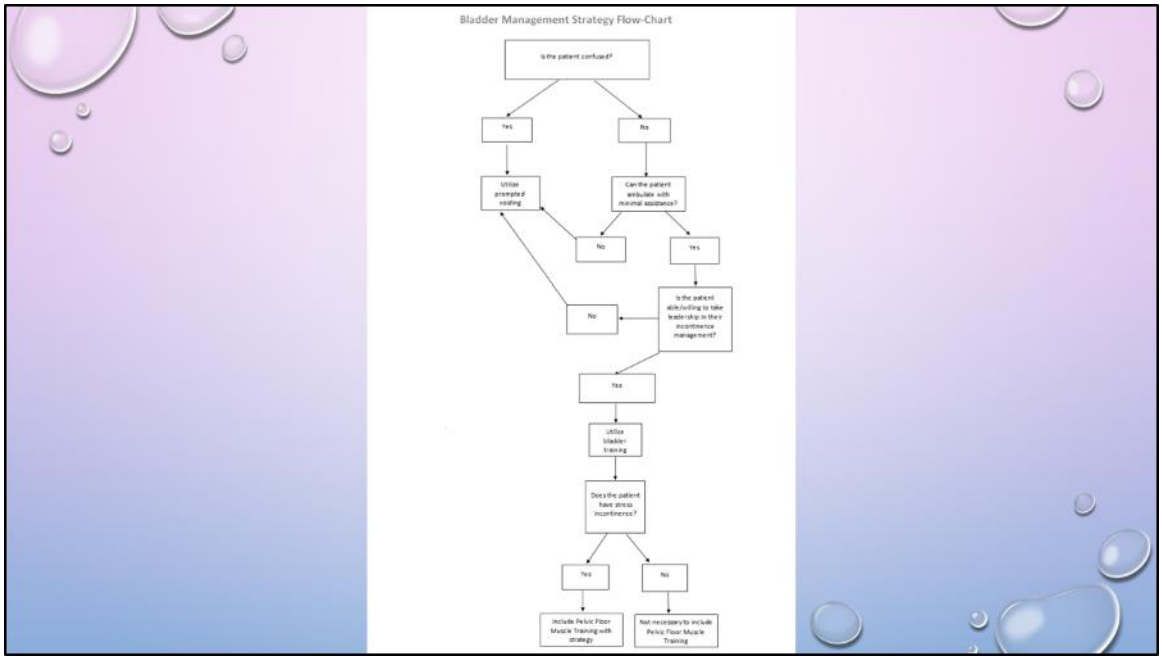
May be beneficial to toilet 1 hour post-meals.

Again, include other team members for pharmacological and dietary changes.

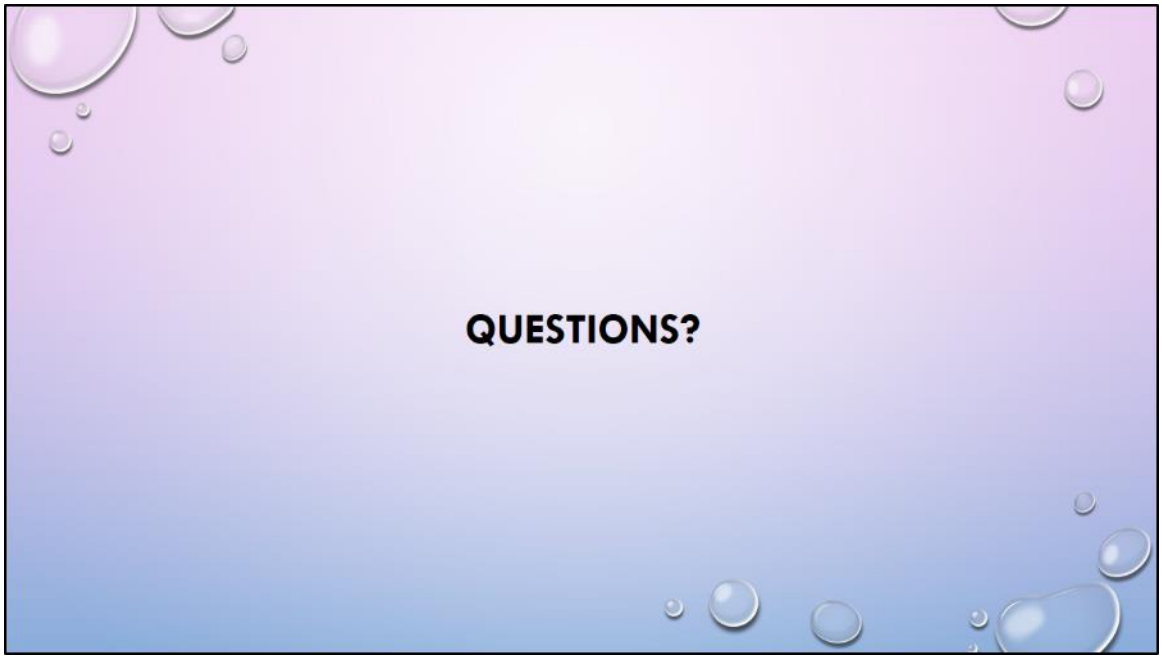
Bowel retraining is similar to bladder training, encourages “holding on”. Useful if the patient requires sphcinter strengthening interventions.



**Hand out case study. 5-10 mins to work on, then have a discussion.



Example of flow chart that will be placed on the nursing unit. At this time, also introduce participants to the reference guide and its use.



Invite participants to ask additional questions.

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Bladder Management Case Study

Mrs. R is a 75 year old woman, admitted to the stroke unit with a left ischemic stroke. She began experiencing incontinence shortly after her admission. She describes the incontinence as "coming with no warning" and has trouble making it to the washroom on time. Although she experiences total weakness in her right arm, she only has mild weakness in her right leg and is improving each day with her mobility, now utilizing a cane independently. She has a no prior history of incontinence, but has had three children in the past. She is also a diabetic and has a history of hypertension, which she takes several medications for, including hydrochlorothiazide. She is not experiencing confusion, but is worried about the autonomy placed upon her with bladder retraining. She is eager to improve (and hopefully eliminate) her incontinence issues.

1. What type of incontinence is Mrs. R experiencing?

2. What are important facts from her history to take into consideration? Are there any other questions you would ask?

3. Which bladder training strategy would you initiate for Mrs. R? Why?

4. Would you include pelvic muscle training as a part of your strategy? Why or why not?

Bowel Management Case Study

Mr. B is admitted with a hemorrhagic stroke. Over the past several days, he has been experiencing constipation, which he did not experience prior to his stroke. His last bowel movement was five days ago, and he is beginning to experience discomfort because of this.

1. What are some questions the nurse should ask Mr. B about his previous bowel habits? Are there any other questions the nurse should ask?

After questioning Mr. B, the nurse discovers that prior to his stroke, he would normally move his bowels every second day, shortly after awakening in the morning. He states that his diet is fair, and he drinks about three glasses of water a day. He also informs the nurse that he was in a car accident 5 years ago, and because of this has chronic back pain which he takes Codeine for regularly.

2. What are some bowel strategies the nurse could implement independently for Mr. B?

3. What others members of the stroke care team should become involved? What would their specific roles be?

Identifying Incontinence Type

Matching:

1. Incontinence that is associated with leakage on exertion.	A. Urge
2. Often linked to frequency and nocturia.	B. Mixed
3. Two or more types of incontinence occurring together.	C. Stress

Scenarios:

1. A patient was admitted two days ago with a right ischemic stroke. Since then, she has been experiencing incontinence. What questions would you ask the patient regarding her incontinence to help identify incontinence type?

2. After questioning the patient, you learn that she often cannot alert nursing staff of her need to toilet because she has little warning of needing to void. What type of incontinence would you classify this as?

3. Several days later, the patient reveals that she has been experiencing bladder troubles for many years, since the birth of her children. Does this change your perception of incontinence type? How?

Bladder and Bowel Management Strategies Post-Test

1. Which of the following strategies would the RN implement for a confused patient?

    a. Bladder training without pelvic floor muscle training.

    b. Prompted voiding.

    c. Bladder training with pelvic floor muscle training.

2. Which of the following strategies would work best with a patient experiencing stress incontinence?

    a. Prompted voiding.

    b. Bladder training without pelvic floor muscle training.

    c. Bladder training with pelvic floor muscle training.

3. A patient is experiencing nocturia and frequency. What type of incontinence is this?

    a. Urge incontinence.

    b. Mixed incontinence.

    c. Stress incontinence.

4. Which of these factors does **not** affect bladder strategy selection?

    a. Mobilization

    b. Confusion

    c. Aphasia

5. Which of these is **not** a dietary change indicated for constipation management?

    a. Increase fiber intake.

    b. Increase caffeinated drink consumption.

    c. Increase water intake.

6. What is the first step in bowel incontinence management?

    a. Bowel retraining.

    b. Pharmacological interventions.

    c. Establishing a pattern of incontinence.

7. Which of these steps is essential to determining type of urinary incontinence?

a. Bladder diary

b. A thorough health history

c. Monitoring patient voids

8. What is another name for pelvic floor muscle training?

a. Kegel exercises

b. Prompted voiding

c. Pelvic contractions

9. Which of the following can incontinence lead to?

a. Increased risk of falls

b. Confusion

c. Decreased appetite

10. Mrs. B is experiencing urinary frequency, nocturia, and incontinence with sneezing. What type of incontinence is this?

a. Stress incontinence

b. Mixed incontinence

c. Urge incontinence

Bladder and Bowel Management Strategies Inservice Feedback

****Please rate the following responses on a scale of 1-5, 1 being poor and 5 being excellent****

1. Quality of material presented:	**1**	**2**	**3**	**4**	**5**
2. Presenter's knowledge of material:	**1**	**2**	**3**	**4**	**5**
3. Resources used (i.e. case studies):	**1**	**2**	**3**	**4**	**5**
4. Method of presentation:	**1**	**2**	**3**	**4**	**5**
5. Overall impression of presentation:	**1**	**2**	**3**	**4**	**5**

6. Do you feel these strategies are feasible for the stroke unit at Western Health? Why or why not?_____
_____
_____
_____
_____

7. What did you feel was most helpful in this presentation? -
_____
_____
_____
_____
_____

8. Do you have any suggestions for changes or improvements?

_____
_____
_____
_____
_____

Appendix D

Resource: Reference Guide

Bladder and Bowel

Management Strategies for Stroke Patients:

A Reference Manual for Registered Nurses

Table of Contents

Introduction

Incontinence is a common adverse effect of stroke, affecting around 60% of all stroke patients. Incontinence is often overlooked as an important stroke care, but, without intervention, incontinence can lead to decreased skin integrity, increased incidence of falls, and an overall decreased perception of quality of life. Registered nurses can help decrease the incidence of incontinence post-stroke through implementation of bladder and bowel management strategies. This module will introduce Registered Nurses to the different types of bowel and bladder management strategies available, how to complete an assessment to determine which type of strategy will work best for each individual patient, and how to implement each strategy appropriately and consistently to ensure the best possible outcome for each patient. Also included in the reference guide are sample bladder and bowel diaries, helpful websites for patient teaching, and a flowchart to aid the Registered Nurses in deciding what strategy will work best.

Bladder Strategies

Bladder strategies are incorporated when a patient is experiencing bladder incontinence of any type (stress, urge, or mixed). Prior to choosing the type of bladder strategy, it is important to determine the type of incontinence, as some strategies are better suited for different types of incontinence than others. How to determine type of incontinence will be discussed in a separate section.

There are three (3) types of bladder strategies:

- Bladder training without pelvic floor muscle training.
- Bladder training with pelvic floor muscle training.
- Prompted voiding.

The type of bladder strategy you choose depends on the patient's cognitive abilities, mobilization, willingness to participate, and incontinence type. Each of these bladder strategies will be discussed separately, as well as how cognitive ability, mobilization, and participation affect each one.

Guidelines for Choosing the Appropriate Strategy:

- **Determine the type of incontinence –** this is accomplished by completing a thorough health history assessment with the patient. Ask the patient when their incontinence usually occurs. Are there any triggers that increases their incontinence? How often are they incontinent?

- **Determine the patient's cognitive status** – this is routinely done during neurological exams with stroke patients. Is the patient orientated to person, place, time, and situation? Remember, a patient may seem orientated but may also be unaware if they are incontinent. Therefore, it is important to question the patient regarding incontinence knowledge each time incontinence occurs (can be done prior to initiating a strategy, such as when completing a bladder diary to determine "normal" voiding interval).

- **Determine the patient's ability and willingness for involvement** – ask the patient about their goals for the outcome of their stroke care, especially incontinence. Explain the process of bladder management to the patient to gage how involved they are willing to be.

- If the patient is not confused, and willing to participate, **initiate bladder training** (with or without pelvic floor muscle training)

- If the patient is confused, or not willing to "take the lead", **initiate prompted voiding**.

Bladder Training without Pelvic Floor Muscle Training:

This type of strategy is can be used on patients who are not confused, who can ambulate independently OR with minimal assistance, and who are willing to fully participate in their incontinence management. Bladder training without Pelvic Floor Muscle Training (PFMT) can be used with any type of incontinence. Prior to the initiation

of this strategy, it is important for the patient to maintain a bladder diary. A bladder diary provides an accurate description of a patient's bladder habits, including how often the patient voids, at what times of day the patient voids, the amount of leakage that occurs, and the amount of fluid intake the patient is having throughout the day.

- Steps for bladder training:
    - ✓ **Bladder diary for 2-3 days** – a sample bladder diary is included in Appendix A.
    - ✓ **Identify the "normal" voiding interval for the patient** – to achieve this, examine the bladder diary provided by the patient. What is the most common intervals between voids? Does the majority of the incontinence/voiding occur at night, during the day, or after fluid intake? **Ex. Voiding/Incontinence occurs every 45 minutes, mostly during the day time.**
    - ✓ **Set timed intervals between voids for the patient to achieve** – in the above example, voiding/incontinence is occurring (on average) every 45 minutes. A realistic goal for this patient would be to increase voiding intervals to 60 minutes. Encourage the patient to try and wait 60 minutes between each void for 2-3 days.
    - ✓ **Once a timed interval is achieved for 2-3 days, increase the interval-** in the above example, once the patient has successfully (i.e. ***consistently***) achieved the set timed interval for 2-3 days, increase the time interval

once again. Since the initial voiding interval was increased by 15 minutes, continue this same increase and now aim for 75 minutes between voids.

- ✓ **Continue until patient has reached their maximum potential-** For most patients, this will occur when they cannot consistently maintain an interval for 2-3 days, or when they have reached 3-4 hours in between voids (remember, it is also not beneficial for the patient to have them hold voids for too longer either!). This can vary greatly amongst patients, so any reduction in incontinence and voiding frequency will be progress for the patient.

Bladder Training with Pelvic Floor Muscle Training:

This strategy follows the same steps as the previous bladder training strategy, only pelvic floor muscle training is incorporated as well. Since the previous strategy worked for all types of incontinence, including pelvic floor muscle training into the strategy would be beneficial for patients who are experiencing stress or mixed incontinence. Stress incontinence occurs when urine leakage (incontinence) follows coughing, sneezing, laughing, etc. Mixed incontinence is when stress and urge incontinence occur together. The goal of pelvic floor muscle training is to increase the strength of the pelvic floor muscles, allowing the patient to better control the release of urine through the urethra. Pelvic floor muscle training is also known as “Kegel exercises” (these exercises can benefit both male and female patients).

Kegel exercise steps:

- ✓ Identify which muscles are the "pelvic floor muscles" – this can easily be done by stopping urine flow midstream.
- ✓ Tighten the pelvic floor muscles, holding the contraction for five seconds. Then, release the contraction for five seconds. Work on increasing the contraction/relaxation interval to 10 seconds each.
- ✓ Do not tighten other muscles, such as abdomen, buttocks, or thighs. Focus only on the pelvic floor muscles.
- ✓ Set a goal to complete 10 sets of contraction/relaxation three times a day. (Reference: Mayo Clinic (2015). Kegel exercises: A how-to guide for women. Retrieved from: http://www.mayoclinic.org/healthy-lifestyle/womens-health/in-depth/kegel-exercises/art-20045283)

Prompted Voiding:

Prompted voiding is a bladder incontinence strategy that can be used for patients who are confused, are not able to ambulate on their own, or are not willing to fully participate independently in their incontinence care. Prompted voiding will work with any type of incontinence. With this strategy, there is more input and initiation from the nursing staff.

- Steps for prompted voiding:

- ✓ **Set a time interval for voiding for each patient** – To discover the patient's "normal" voiding pattern, it would be beneficial to do a bladder diary, as with bladder training. Because of the possibility of confusion, this may need to be completed by nursing staff. If unable to determine a voiding interval for the patient, the nurse may select one for him/her, such as hourly checks.
- ✓ **Ask the patient if they are "wet" or "dry" –** every hour (or whichever time interval you have chosen for your patient), question the patient as to whether they are wet or dry. If the patient, is confused, they may not be able to answer appropriately. If they are unable to answer, check the status of their incontinence.
- ✓ **Offer toileting to the patient based on their response** – if the patient is dry, offer them toileting and any assistance they may need with this. If the patient is wet, provide them with incontinence. If the patient is unable to answer in previous step, offer toileting/provide care based on your observations.
- ✓ **If patient correctly identifies being "wet" or "dry" and is successfully toileted, offer positive feedback** – stress the importance of alerting nursing staff when toileting is need. Reinforce the benefits of being continent. If the patient is wet when check, explore as to why the patient was unable to alert nursing staff of their toileting need.

Bowel Strategies

Bowel strategies can be used to help with two (2) types of bowel issues; incontinence and constipation. Bowel strategies differ from bladder strategies in that there are not actual strategies with steps to use, but rather a series of interventions and lifestyle changes that can occur to help with bowel issues. Some strategies are similar across incontinence and constipation management, while others differ. Each type of bowel issue and its subsequent interventions/strategies will be discussed separately. Prior to starting any type of bowel intervention or strategy, it is important (as with bladder incontinence) to establish a "normal" pattern for each patient. To do this, the nurse or patient can complete a 2-3 day bowel diary, an example of which can be found in Appendix B.

Bowel Incontinence:

There are several strategies that can be initiated by a Registered Nurse to help improve bowel incontinence:

- **Establishing a pattern of incontinence -** this can be done by analyzing a completed bowel diary. Note the time of day that bowel incontinence occurs, if any particular activity precedes it, what the patient ate/drank. Also, note the type of medications (especially bowel management) being taken by the patient and at what times of day these are taken.

- **Encouraging toileting after each meal** – one hour after each meal, encourage the patient to toilet, and provide them with any assistance they require to do so. Oftentimes, eating stimulates the bowel, and therefore, incontinence may be able to be avoided.

Constipation:

Several strategies that can be initiated to improve constipation are:

- **Establishing a pattern of bowel movements** – since the patient is experiencing constipation, it may take several days to complete a bowel diary and an accurate record of regular bowel movements. Once this is established, there is often a pattern of bowel movements occurring during the morning vs. the evening. If this is the case, encourage/assist the patient to toilet at this time every day.
- **Dietary changes** – changing certain aspects of a patient's diet can decrease the incidence of constipation. Increasing fiber and water intake can improve constipation. Sometimes this may involve adding a fiber supplement, such as Metamucil, which has to be ordered by a physician.
- **Pharmacological interventions** – if the above strategies/interventions do not result in improvement for your patient, it may be useful to discuss the patient's constipation with the primary physician. There are different classifications of medications that can be used (laxatives, stool softeners) to help with constipation, all of which need to be ordered by a physician. As well, it may be

useful to review the patient's current medication list to see if any of the medications may increase the incidence of constipation, such as opioids.

Summary

The use of this reference guide is intended to facilitate a smooth transition for both registered nurses and patients into the implementation of bowel and bladder management strategies for stroke patients. The implementation and maintenance of these strategies will help advance Western Health towards meeting the standards for stroke care mandated by the Heart and Stroke Foundation of Canada. Also, by using these strategies, we are striving towards not only better patient outcomes, but ultimately, more thorough, patient-centered care.

Helpful Websites

https://www.nafc.org/bladder-retraining/ - explanation of what information should be included in a bladder diary.

https://www.nafc.org/kegel/ - provides step-by-step instructions of how to properly do Kegel exercises, useful for instructing patients who are utilizing Bladder Training with Pelvic Floor Muscle Training.

https://www.nafc.org/diet-and-exercise/ - includes a lot of useful information of how lifestyles choices, including diet, exercise, and smoking, can affect incontinence. Can be used for patient education.

https://www.nafc.org/pharmaceutical/ - a useful list of medications that can be prescribed by physicians to help decrease different types of urinary issues, such as incontinence.

https://www.bladderandbowel.org/conservative-treatment/bowel-retraining/ - useful for client education in regards to bowel retraining.

https://www.bladderandbowel.org/conservative-treatment/bladder-diary/ - includes information about how to retrain the bladder and information patients should include in a bladder diary to establish bladder patterns.

Glossary

- **Incontinence**: The involuntary leakage of urine or fecal matter.
- **Stress incontinence**: Urinary leakage is caused by some form of exertion (ex. Coughing, sneezing, laughing).
- **Urge incontinence**: Urinary leakage is associated with an unavoidable urge to void. Often connected to nocturia and frequency as well.
- **Mixed incontinence**: When both stress and urge incontinence occur together.
- **Bladder and bowel management strategies:** Various strategies that **Registered Nurses** can implement to reduce the incidence of incontinence in stroke patients.

References

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Woodward, S. (2014). Managing urinary incontinence after stroke. *British Journal of Neuroscience Nursing,* 25-31. Retrieved from: http://www.magonlinelibrary.com loi/bjn

Appendix A: Sample Bladder Diary

Date: **Patient Name:**

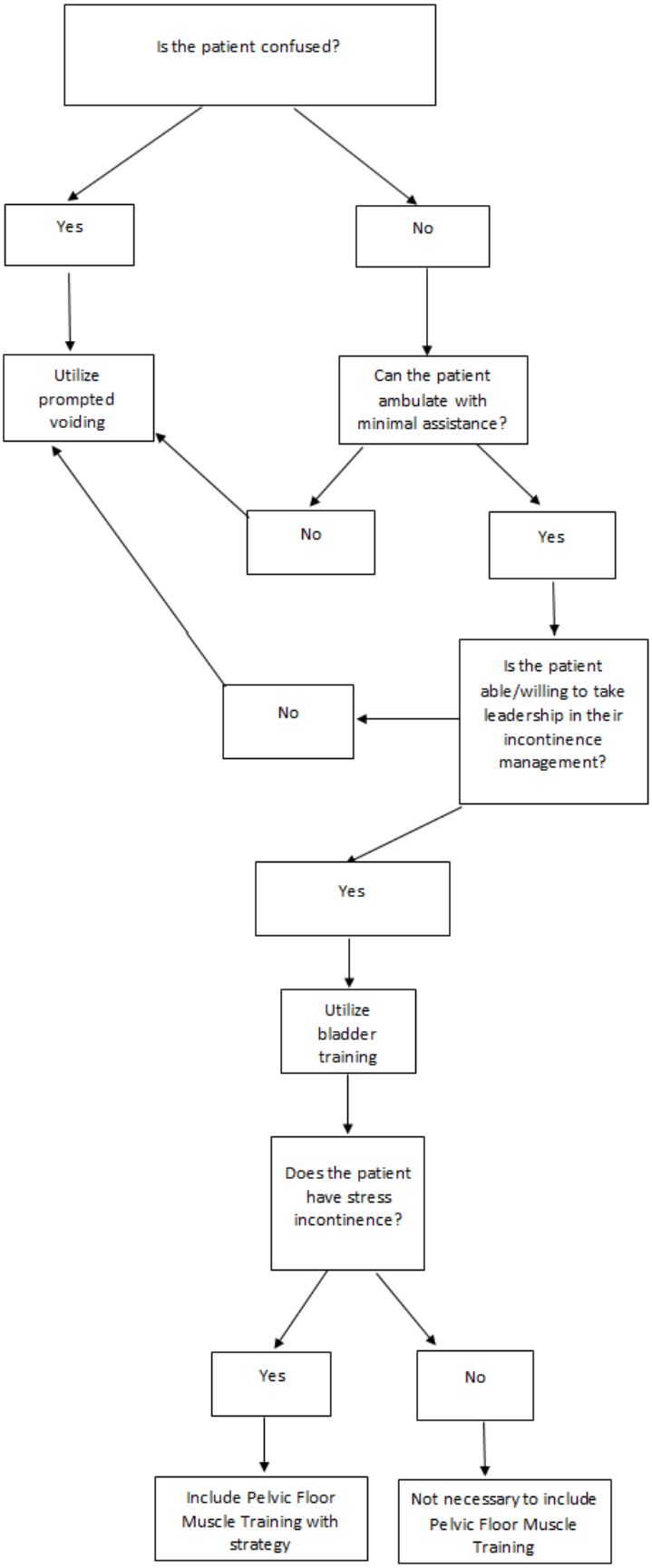
Time (include the exact time, i.e. 1215 AM)	Oral Intake	Void (Y/N)	Incontinence (Y/N)	Level of Incontinence (Barely Wet, Wet, Soaked through)
12 AM				
1 AM				
2 AM				
3 AM				
4 AM				
5 AM				
6 AM				
7 AM				
8 AM				
9 AM				
10 AM				
11 AM				
12 PM				
1 PM				
2 PM				
3 PM				
4 PM				
5 PM				
6 PM				
7 PM				
8 PM				
9 PM				
10 PM				
11 PM				

Appendix B: Sample Bowel Diary

Date: **Patient Name:**

Time (include the exact time, i.e. 715 AM)	Oral Intake	Food Eaten	Activity	Bowel Movement (Y/N)	Incontinence (Y/N)
12 AM					
1 AM					
2 AM					
3 AM					
4 AM					
5 AM					
6 AM					
7 AM					
8 AM					
9 AM					
10 AM					
11 AM					
12 PM					
1 PM					
2 PM					
3 PM					
4 PM					
5 PM					
6 PM					
7 PM					
8 PM					
9 PM					
10 PM					
11 PM					

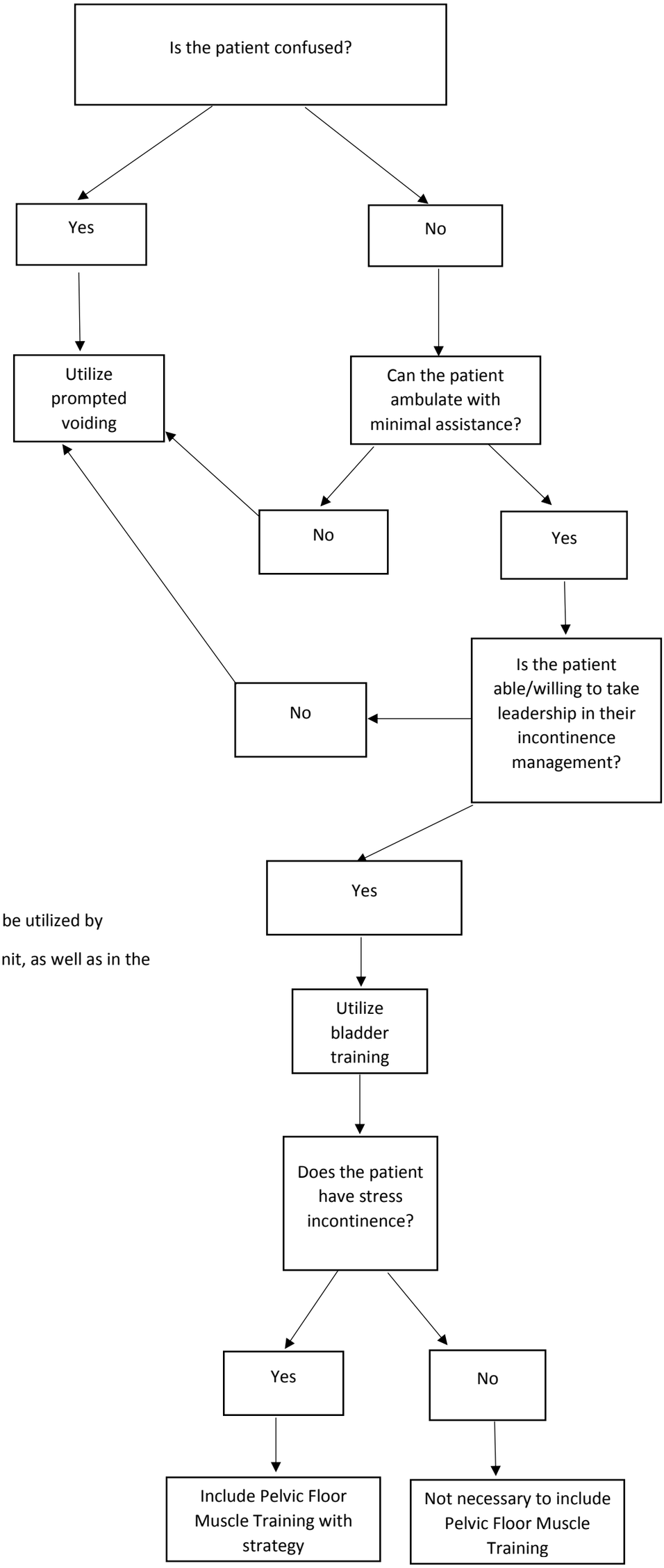
Bladder Management Strategy Flow-Chart



Appendix E

Resource: Flowchart

Bladder Management Strategy Flow-Chart



**This flow chart will be utilized by

Being placed on the unit, as well as in the

Reference manual**