# Getting Everyone in the Same Room: The Combined Therapist Approach to Teaching Independence in Clean Intermittent Catheterization

CE 1.0 Contact Hour

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**Introduction:** Most pediatric patients with neurogenic bladder require clean intermittent catheterization (CIC), several times daily, for maintenance of continence and health. CIC is performed by the caregiver until the child is developmentally ready to learn self-CIC. Children with associated mobility, dexterity, and cognitive deficits tend to take much longer to learn self-CIC. We piloted a combined pediatric urotherapy and occupational therapy clinic to address this problem.

**Methods:** Five children (6–14 years old) and their parents attended combined therapist sessions for 6 months. Explanation of self-CIC was done using show-and-tell method followed by doll play and/or supervised practice. Patients' mastery difficulties were identified by demonstration and collaborative discussion. Specific tasks and activities were recommended for home practice after task assessment and analysis. Reasons for slow progress in learning self-CIC were documented.

**Results:** All five children had motor and cognitive difficulties. Previously, caregivers regularly overassisted, which prevented patient practice and exposure. Task assessment, analysis, and recommendation had been suboptimal because patients' different combinations of disabilities caused unique difficulties with self-CIC that were unrecognized when attending individual therapist sessions. After the combined clinic, patients increased participation in the preparatory phase of self-CIC, functional mobility and dressing tasks.

**Discussion:** Despite longer session duration and scheduling constraints, the combined therapist approach was more efficient and effective for this category of patients, with fewer return sessions needed to achieve the desired outcome. We recommend early identification and referral of appropriate patients for a combined therapy clinic.

**KEY WORDS:** clean intermittent catheterization, interprofessional collaboration, occupational therapy, patient education, urotherapy

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## BACKGROUND

Many patients with neurogenic bladder require clean intermittent catheterization (CIC), several times daily, for maintenance of continence and health (Holroyd, 2018; Lamin & Newman, 2016). Pediatric patients with neurogenic bladder need to have CIC procedures performed by a caregiver until they develop adequate mental, physical, and emotional capabilities for reliable, independent self-CIC. In our hospital, children on caregiver-administered CIC are routinely introduced to start learning self-CIC when developmentally ready, typically around 5–6 years old. This is a graduated process where the child is first supervised to do the simpler parts of the CIC process (preparation, cleansing, removal of catheter) before being taught to insert the catheter, with concomitant psychological preparation throughout the learning process (Bray & Sanders, 2007).

The pediatric urotherapy nurse noticed that some patients had prolonged delay in learning self-CIC compared

with the rest. These were often children with associated mobility and/or dexterity issues who were already undergoing regular attendance at separate occupational therapy sessions. Hence, a combined pediatric urotherapy and occupational therapy clinic was organized.

## METHODS

A pilot program was run with three combined therapist clinics held in 6 months, attended by selected patients and their caregivers. Explanation of self-CIC was done using show-and-tell method followed by doll play and/or supervised practice. Patients' mastery difficulties with self-CIC were identified through direct observation and/or collaborative discussion between patient, caregiver, and both therapists. Specific tasks and activities were recommended for home practice after task assessment and analysis. Reasons for slow progress in learning self-CIC were documented.

## RESULTS

Five patients attended a mean of 3.4 (range: 1–5) clinic sessions in 6 months with no default appointments. Before the combined therapy clinic, these patients had made limited or no progress in learning self-CIC, despite each attending a mean (range) of 3.1 (1–4) individual urotherapy sessions and 1.5 (1–7) occupational therapy sessions. There had also been a high default rate of individual therapy appointments resulting in wasted therapist time (urotherapy: mean = 3.3 [range: 1–5]; occupational therapy: mean = 2.3 [range: 0–8]).

All five patients had motor and cognitive difficulties. Previously, when attending individual urotherapy sessions, their caregivers had continued to perform all steps of the CIC procedure in-between appointments, which prevented the children from getting adequate practice and exposure. The patients and/or their caregivers often could not identify learning issues nor describe to the therapist which steps of the self-CIC procedure were problematic. With multiple possible reasons for delayed learning such as physical or motivational limitations, it was difficult to direct therapy focus. After attending three combined sessions, there was increased participation from the children in the preparatory phase of self-CIC, functional mobility and dressing tasks.

## CASE STUDIES

We describe three case studies that illustrate the key learning points of the pilot program. Table 1 details the patients' medical conditions with resultant impact on activities of daily living (ADLs) and the outcomes of the combined therapist clinic.

### Case A

Patient A is a 14-year-old boy with neurogenic bladder and bowel incontinence secondary to myelomeningocele and hydrocephalus who recently underwent augmentation cystoplasty to increase his bladder capacity. Strict adherence to the CIC regimen is essential for patients with a surgically augmented bladder because of the risk of neobladder perforation, urinary stone formation, and recurrent urinary tract infections. CIC compliance is especially important for Patient A as he already has renal impairment from prior renal scarring. He also requires a daily bowel irrigation regimen for stool continence.

Before the combined clinic, Patient A had learned self-CIC but persistently relied on his caregiver to perform the CIC for him instead. The reason given was that the caregiver was faster and his mother did not want him to miss out on classes at school.

At the combined clinic, several contributory factors were discovered. He is wheelchair-bound and had not practiced regular transfers. Transfers are important as self-CIC requires adequate patient strength and core balance to transfer between wheelchair and toilet. This requirement is individualized as the access for CIC depends on the patient's physical habitus affecting seated position, vision, handedness, fine motor skills, and toilet configuration. His recent prolonged hospitalization had unmasked new right index finger weakness. He had just started middle school where a new school environment made transfers more difficult because the toilet bowl was lower and the grab bars were out of his reach. The therapists taught him appropriate exercises and modified the self-CIC procedure to suit his motor limitations. His school was informed to review the environmental aids (grab bar type and placement) in the handicapped toilet.

### Case B

Patient B is a 6-year-old girl with neurodevelopmental delay secondary to myelomeningocoele with hydrocephalus. She requires CIC regimen and daily bowel irrigation to manage neurogenic bladder and bowel incontinence. At the age of 6 years, she was introduced to the simpler parts of the CIC process to begin the learning transition from caregiver-administered CIC to self-CIC.

Before the combined clinic, Patient B did not make any progress in learning nor would she practice at home in between appointments. At the combined clinic, several factors were identified: both fine motor and gross motor deficiencies, lack of confidence, and poor motivation that was reinforced by parental behavior. With the encouragement of both therapists, a different patient education

**Table 1: Details of Medical Conditions and Comorbidities, Impact on Learning Self-CIC, and Outcome of Combined Clinic**

| Case | Medical Diagnoses | Impact on Activities of Daily Living (ADLs) | Combined Clinic Findings | Outcome of Combined Clinic | Progress |
|---|---|---|---|---|---|
| A: 14-year-old boy | Myelomeningocele and hydrocephalus with ventriculoperitoneal shunt<br><br>Horseshoe kidneys with bilateral renal scarring<br><br>Neurogenic bladder with bladder augmentation cystoplasty<br><br>Neurogenic bowel | Wheelchair bound<br><br>Requires CIC every 3 hours via catherizable channel (Mitrofanoff)<br><br>Daily bowel irrigation (by caregiver) | 1. Right index finger weakness (worsened by recent hospitalization) affecting dexterity<br>2. Does not do any transfers and spends time mainly on wheelchair in the day, including at school<br>3. Does CIC procedure while seated on a wheelchair and finds it difficult to pull down pants while seated on a wheelchair<br>4. Caregiver goes to school with the child to assist in changing of incontinence pads due to overflow leaking; usually does CIC for him in school so as not to miss classes<br>5. School environment problems<br>• School toilet bowl is lower than the one at home so the patient has difficulties transferring independently.<br>• Grab bars available in handicapped toilet; however, the patient reported he was unable to reach or pull down the grab bar | Confidence increased after two sessions.<br><br>Self-CIC in school and at home<br><br>Minimized dependence on caregiver for ADLs<br><br>Improved mobility | Both therapists working with school authorities to improve school environment<br><br>Next step is to teach him independence in administering daily bowel regimen |
| B: 6-year-old girl | Myelomeningocoele with hydrocephalus and neurodevelopmental delay<br><br>Neurogenic bladder<br><br>Neurogenic bowel | Walks with orthopedic shoes<br><br>CIC × 5 times a day (by parent)<br><br>Daily bowel irrigation (by parent) | 1. Attends a special school<br>2. Completely dependent on the caregiver for CIC and simple ADLs<br>• Does not participate in any CIC phases (prepare, clean, insert, empty)<br>• Lack of practice with CIC phases has reduced confidence to learn new things<br>• Requires prompting to do simple ADLs, e.g., removing underwear<br>3. Reduced fine motor coordination dexterity and upper limb strength; unable to do own transfers<br>4. Caregiver does CIC and bowel procedures with the patient lying down on the bed for convenience, to reduce the need to carry the patient to the toilet. | Mood changed from fearful to cheerful after three sessions.<br><br>Participates in the preparation and cleaning phases in CIC<br><br>Achieved independence in some simple ADLs, e.g., removing underwear | To move the location of CIC and bowel procedures from the bedroom to the toilet |
| C: 13-year-old boy | Myelomeningocele/caudal regression syndrome<br><br>Neurogenic bladder<br><br>Neurogenic bowel | Wheelchair bound<br><br>CIC × 5 times a day (by caregiver)<br><br>Daily bowel irrigation (by caregiver) | 1. Reduced trunk control<br>2. Completely reliant on caregiver for all ADLs and transfers<br>3. Completely caregiver dependent for CIC<br>4. Cries easily when asked to participate in CIC or ADLs<br>5. Fears embarrassment if peers find out about need for bladder/bowel procedures | More cooperative with learning after three sessions<br><br>Participates in transfers<br><br>Engages in the preparation phase of CIC | Referred to psychologist for emotional resilience |

*Note.* CIC = clean intermittent catheterization.

method (doll practice and play), and modification of technique, Patient B was finally willing to try the skills shown. Her improved motivation has made it much easier for her mother to get her active participation in the CIC preparatory/cleansing phases at home, in between therapy sessions. With regular practice, Patient B is now on track to learn self-CIC.

### Case C

Patient C is a 13-year-old boy with paraplegia, neurogenic bladder, and bowel incontinence secondary to myelomeningocele and caudal regression. Because of poor social circumstances, he did not receive regular healthcare until a couple of years ago and was only started on regular CIC by his caregiver then. He also requires daily bowel irrigation regimen. After his clinical condition was stabilized, it was time for him to learn self-CIC to become independent.

Before the combined clinic, he was completely reliant on the caregiver for CIC as well as all other ADLs. He would not do any transfers, so he had to be carried. He also remained emotionally labile, often crying when asked to do anything by himself. The combined clinic highlighted that his emotional status was the largest obstacle to learning independent ADLs and self-CIC, so a psychologist referral was made. Presently, with technique modification and encouragement, he has begun practicing transfers and participates in the preparatory phase of CIC.

## DISCUSSION

Teaching self-CIC to children involves using age-appropriate pedagogical methods to support learning of theoretical knowledge and practical skills and requires contextualization to the patient's social environment and psychosocial support. Various educational therapeutic programs and pedagogical methods have been described, with no method being clearly superior (Le Breton, Guinet, Verollet, Jousse, & Amarenco, 2012). It is well recognized that the dedicated urotherapy nurse is a key requirement for success and provides essential support to the child and caregivers (Faure, Peycelon, Lallemant, Audry, & Forin, 2016).

Our hospital's routine pediatric urotherapy teaching program for self-CIC was effective in transitioning most patients with neurogenic bladder from caregiver-administered CIC to self-CIC. However, we found that this single therapist approach was not suitable for complex cases where patients had associated medical conditions that impeded learning.

Interprofessional collaboration often leads to better learning for both the patient and the healthcare providers (Cobussen-Boekhorst et al., 2010; Le Breton et al., 2012). When patients with multiple comorbidities need to learn complex skills, having different therapy experts work together with the patient allows for a proper cognitive task analysis that leads to the best individualized strategy tailored to that patient's needs.

In the combined pediatric urotherapy and occupational therapy clinic, the urotherapist learned about the role of the occupational therapist in enhancing the patient's motor capabilities (core balance and stability, fine motor skills) and cognitive capabilities (planning and initiation) necessary for learning self-CIC (Donlau & Falkmer, 2009). The urotherapist was introduced to patient resources available in environmental aids like grab bars and assistive technology like electronic time prompts that enhance mobility and support cognitive functioning (Johnson, Dudgeon, Kuehn, & Walker, 2007). Likewise, the occupational therapist learnt about the whole process of self-CIC from cleansing, equipment placement, catheterization, and discarding waste to the manipulation requirements of different types of catheters and the possibility of CIC procedure modifications to suit specific patient or environment situations (Bray & Sanders, 2007).

Having both healthcare professionals in the same room asking questions and listening to answers allowed iterative discovery of new knowledge that would not have arisen in separate patient consultations. This was illustrated by Case A where the patient's reticent personality required repeat detailed questioning to surface the problems related to the school environment. This new knowledge allowed both therapists to modify their instructions to their joint patient according to that individual's specific needs. It also allowed them to consider alternative creative solutions with subsequent patients whom they saw in their separate clinics.

It has been shown that observing the patient perform the CIC procedure is more accurate than the subjective information provided by the patient or caregivers (Donlau & Falkmer, 2009; Donlau et al., 2011). Several of the steps required for self-CIC are different from caregiver-administered CIC such as patient positioning and visualization of the urethral opening. Hence, a caregiver may be familiar with performing CIC for the patient but may not be able to anticipate or identify the patient's problems with learning self-CIC. In addition, some patients with congenital neurogenic bladder have concomitant neurodevelopmental delay that limits their ability to describe their difficulty with self-CIC. Before the combined clinic, the occupational therapist had limited information about the different steps involved in self-CIC. This led to more general activities or exercises

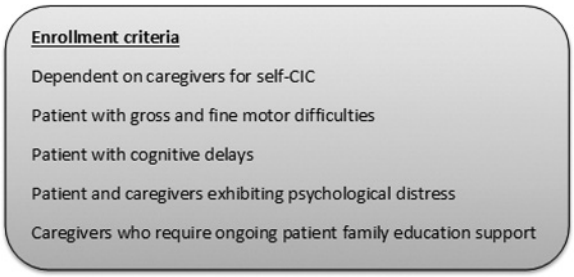


**FIGURE 1.** Enrollment criteria for combined urotherapy and occupational therapy clinic.

being done in a session rather than self-CIC task-specific home program activities and goal setting. Hence, it prolonged the learning process for the patients to achieve independent self-CIC.

Beyond clinical therapy techniques, the advantage of a joint clinic allowed both healthcare professionals to share different styles of patient education methods with each other, for example, the use of visual cards to aid in sequencing of tasks and patient-initiated checklists. This was highlighted by Case B who was fearful and reluctant to try new things. The urotherapist found that utilizing a different technique recommended by the occupational therapist (encouraging doll play) achieved a breakthrough to get the patient motivated to participate in learning. Presently, much of healthcare professional preemployment education continues to occur in silos. Regular interprofessional collaborative patient-centered practices like this combined clinic help encourage cross-discipline professional development and contribute to continuing interprofessional education (Steinert, 2005).

Among the disadvantages of a combined therapist clinic was that it increased scheduling constraints for appointments and each clinic session duration was longer than a single therapist session. Nevertheless, it was more efficient for a subset of patients because it took fewer return sessions to achieve the desired outcomes and empowered patients and caregivers who then felt much less frustrated. It also allowed the healthcare providers to identify other significant contributory problems like psychosocial concerns (reactive depression in Case C) and contextual issues (school toilet in Case A), which led to essential interventions.

As a result of this pilot program, our hospital has approved the resources to continue with the combined urotherapy and occupational therapy clinic. It is now routine practice in our neurogenic bladder clinic for early identification and enrollment of patients who would benefit from this clinic (Figure 1). We have also implemented use of the Canadian Occupational Performance Measure to track progress in learning self-CIC and aid in collaborative goal setting for patients in the clinic.

## CONCLUSION

A combined therapist clinic is efficient and beneficial for a select group of patients to learn self-care skills and exemplifies best interprofessional collaborative practice.

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