

SCOPE OF WORK – 2019-2 – HOME-SCI BLADDER MANAGEMENT PILOT PROJECT

ECONOMIC ANALYSIS

1. Introduction/Background

Telehealth is becoming a popular intervention between patients and their physicians as it allows people to monitor their health from the comfort of their own homes. It is an especially valuable option for individuals with spinal cord injury (SCI) who may require regular visits with a specialist. Many of these individuals spend hours preparing to go out to see a physician, travel long distances to make their appointments, or have restricted mobility and accessibility issues. Conducting visits via telehealth makes it easier for people with SCI to meet with their specialists and helps prevent secondary complications from escalating, avoiding potentially life-threatening complications and reducing the burden on the healthcare system.

Urinary tract infections are a common secondary complication for people with SCI that can diminish their quality of life and lead to emergency room visits for urgent treatment. The Home-based observations and monitoring of events related to urinary tract infections in SCI (HOME-SCI) study looked at two different technologies to determine whether or not those technologies help individuals monitor their bladder health and catch potential problems before they become more serious.

All participants participated in weekly telehealth video-conferencing with a research nurse. A sub-group of those participants had a small wireless device taped to their skin over their bladder. This device, called the Near Infrared Spectroscopy (NIRS), is a non-invasive optical technique that can determine bladder health by using light to monitor blood flow and oxygenation. The study is now closed and recruited 64 participants.

2. Economics Research Questions

- Did the intervention reduce healthcare costs relating to bladder-related expenditures?
 - How much did it cost to provide the intervention (to an individual)?
 - What economic benefits did the intervention provide (to an individual)?
 - How do the intervention's economic benefits compare to its costs?

3. Population, Setting, Intervention and Control/Comparison Group

64 individuals with neurogenic bladder (resulting from SCI, multiple sclerosis (MS), spina bifida, or other origin) that was diagnosed at least 6 months prior to study entry and who in the opinion of the clinical investigator is at high-risk for urinary-related events (e.g. urinary tract infections). All participants participated in the intervention (telehealth).

Intervention: Home-based monitoring of urinary symptoms using telehealth sessions occurring at least once per month (more frequently if acceptable) with a member of the study personnel following a six-month or more lead-in period of monitoring of urinary-related complications from participant healthcare records.

The study determined that the intervention decreases the frequency of urinary events associated with urinary tract infections. Potential costs and economic benefits associated with the intervention include those in the table below.

Costs	Economic Benefits
Observed health care costs for bladder issues/treatment of UTIs	Reduced health care costs for bladder issues/treatment of UTIs Avoided ER visits ('ER as primary care')
Costs for additional testing and testing materials, including home supply kit	Opportunity costs – GP, clinician, specialist, etc. time saved due appointments that would have been pre-intervention, i.e. regularly scheduled appointments appointment due to early identification and treatment)
Costs for additional GP visits, clinician visits, specialist visits, etc. related to potential increase in rate of suspected UTIs	Opportunity costs – patient and/or caregiver/family member time saved
Costs/burden to individuals with regards to attending scheduled visits (includes caregiver time off, travel, etc)	
Telehealth System set up/monitoring/maintenance	Reduced travel costs if applicable
Telehealth training	Improved sense of self control and quality of life
Opportunity cost of caregiver/family member time to assist with Telehealth appointments	Reduce burden of extra time, day off work, etc.
Reduced spend on consumables e.g. diapers	Preventing urological complication will reduce the need for some consumables.
Nurse salary and benefits to complete one Telehealth follow-up per week for 6-12 months (approx. \$900 to \$1,800 per patient, assuming hourly wage of \$29, appointments last one hour, and a 30% benefit rate)	

Data collected to support the above questions includes (not exclusively):

- distance travelled to visit
- support required to attend appointment (e.g. spouse time off work, transport, potential hotel stay)
- number of UTIs experienced (including any required GP or hospital visits; compare to pre-study)
- consumables used (e.g. diapers, catheters)
- feasibility of home use of NIRS
- qualitative information on improved quality of life as a result of fewer UTIs

4. Outcomes

Praxis is requesting analysis outcomes which include reduced healthcare costs relating to bladder-related expenditures, on:

- Average
- Average by category of influencing factors

5. Time Frame and Budget

Study activities are planned in 2019 and/or 2020. The table below shows the proposed timeline for the study, described by tasks/activities and their end dates. All project deliverables will be provided to Praxis in English.

The budget for this analysis is CDN\$9,000-\$18,000.

TASKS	Schedule TBD
Request Proposals/Review/Select and Set Up Contract	
Start Up Meeting/Confirm Scope of Work	
Develop Analysis Plan	
Access Data	
Conduct Analyses	
Summarize Results	
Draft/Final Report	