PROMOTING INDEPENDENCE WITH BOWEL MANAGEMENT AFTER SPINAL CORD INJURY

A Client-Centered Program

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• CME Staff Disclosures

• PESG Staff have no financial interest or relationships to disclose.

• Grant & Research Support

• UPMC Rehabilitation Institute
• Department of Physical Medicine & Rehabilitation, University of Pittsburgh School of Medicine
• University of Pittsburgh School of Health and Rehabilitation Sciences
Learning Objectives

1) Cite a clinical perspective of neurogenic bowel after spinal cord injury.

2) Describe ways to decrease bowel accidents, both in rehabilitation and at home.

3) Discuss techniques to increase clients’ independence with bowel management.

4) Describe a bowel transition plan to facilitate clients’ return to the community.

5) Discuss preliminary data on integrating a new client-centered protocol for bowel management.
Background

- Bowel care interferes with careers, relationships, social life and leisure activities (Coggrave, 2009)
- Decreased quality of life when unable to perform bowel care independently (Liu, 2009)
- *Perceived* quality of life has negative effect on secondary conditions (Hammell, 2010)
- Better results when initiated as soon as possible after injury (Correa, 2000)
- Dependent learner vs. self-directed learner (Pryor, 2004)
- Need to do more than simply provide facilities with Clinical Practice Guidelines (Goetz, 2005)
Rehabilitation Team for Bowel Management

- Client
- Physician
- Nursing staff
- Physical Therapist
- Occupational Therapist
- Dietitian
Typical Roles in Bowel Management: Physician

- Monitor and adjust medications to aid in **successful planned evacuations**
  - Stool Softeners
  - Laxatives
  - Stimulants
  - Bulking agents
  - Suppositories
  - Enemas

- Important! Doctors need *specific* info to help clients:
  - stool amount, frequency, consistency
Typical Roles in Bowel Management: Nursing

- Educate patients on bowel management protocol
- Document bowel info for physician’s use
- Usually perform bowel program for patient until patient is able to complete on own
Typical Roles in Bowel Management: Physical Therapist

- Promote and increase physical activity
- Transfer skills
- Trunk balance
Typical Roles in Bowel Management:
Occupational Therapist

- Clothing management
- Hygiene
- Adaptive equipment
- Simulation of home environment
- Problem solving skills
Typical Roles in Bowel Management: Dietitian

- Education on food and diet
- Discuss previous diet likes/dislikes
- Encourage healthy choices

![The Balance of Good Health Chart](image)
Bridging Practice Gaps: Where is the communication breakdown?

- Lack of definitive educator role: which discipline is responsible for providing bowel management education?
- Clients may not see the “big picture” of how these disciplines are working together for the same goal of Independence with Bowel Management
Common problems & issues

- Bowel management: socially taboo
- Other concerns: wheelchair use, independence
- Awareness and knowledge of neurogenic bowel diagnosis
- Inconsistent training
- Lack of control in bowel training
How can we increase team communication?

How can we empower clients to take control of their bowel programs?
Research Funding

UPMC Rehabilitation Institute Clinical Pilot Grant

- Department of Physical Medicine & Rehabilitation, University of Pittsburgh School of Medicine
- University of Pittsburgh School of Health and Rehabilitation Sciences
Study Aims

I. To study the effects of a bowel care education program.

II. To study the effects of an individualized bowel diary program.

III. To study client carry-over of the bowel program and outcomes after discharge from inpatient rehabilitation.
Inclusion Criteria

• New diagnosis of SCI with paraplegia
• Neurogenic bowel as a result of SCI
• Potential to reach at least 3+/5 gross upper extremity strength, including grasp
• Thumb opposition WFL on at least one hand
• Grossly intact cognition
• Able to read and write English
Exclusion Criteria

- Previous diagnosis of SCI and already manage own bowel program
- Colostomy in place to manage bowels
- Limited upper extremity strength, grasp, or opposition without potential for some recovery
- Stage III or IV wound on sitting surfaces of the body
- Limited sitting schedule per doctor’s orders
Control Group

• Same basic inclusion and exclusion criteria as the study group.
• Matched to study group on level of injury and basic demographic information.
• Comparisons between individuals treated with the new program and the control group through retrospective evaluation.
Outcome measures

- Weekly FIM scores
  - Bowel
  - Toileting
  - Toilet transfer
- FIM change over the course of the hospital stay
- FIM at discharge
- Follow-up FIM post-discharge
Enrolling clients in study

• Screen new admissions for inclusion & exclusion criteria
• Begin study protocol in first week of rehabilitation stay
• Update team in weekly conference
Protocol

- Stage One
  Education Module

- Stage Two
  Personalized Bowel Diary
Stage One: Education Module

- Use of PVA Consumer Guidelines
- Anatomy
- Diagnosis of neurogenic bowel
- Knowledge of medications & diet
- How to complete bowel program
- Skin care and wound prevention
Digestive System

- Oral Cavity
- Esophagus
- Stomach
- Small Intestine
- Large Intestine
- Colon
- Rectum
Nervous System

- Central Nervous System
  - Brain
  - Spinal Cord
- Peripheral Nervous System
  - Somatic
  - Autonomic
    - Sympathetic
    - Parasympathetic
    - Enteric
Somatic Nervous System

- Voluntary relaxation of external anal sphincter
- Voluntary relaxation of puborectalis muscle
Parasympathetic Reflexes

• Gastrocolic Reflex
  o Stimulated by food in GI tract (eating)
  o Mass movement of colon to move stool

• Rectocolic Reflex
  o Stimulation or stretching of rectal wall by stool, finger or suppository
  o Relaxes internal anal sphincter
Enteric Nervous System

• Embedded in lining of GI tract
• Controls movement of stool through colon
• Contains efferent, afferent, and interneurons
  • Therefore, can act without input from CNS
Bowel Issues after SCI

- Decreased sensation of stool in rectum
- Extended transit time of stool
- Sphincters may be loose (flaccid)
- Sphincters may be tight (spastic)
- Lack voluntary relaxation of external anal sphincter
- Lack voluntary control of puborectalis muscle
HOW DO INDIVIDUALS WITH SPINAL CORD INJURIES MANAGE THEIR BOWELS?

With BOWEL TRAINING programs!
## Upper Motor Neuron vs. Lower Motor Neuron

<table>
<thead>
<tr>
<th></th>
<th>UMN Reflexic</th>
<th>LMN Areflexic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesion Level</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Extremity Tone</td>
<td>Spastic</td>
<td>Flaccid</td>
</tr>
<tr>
<td>Sphincter Tone</td>
<td>Tight</td>
<td>Loose</td>
</tr>
</tbody>
</table>
Upper Motor Neuron

<table>
<thead>
<tr>
<th>Goal</th>
<th>How?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft, formed stool</td>
<td>Diet &amp; medication</td>
</tr>
<tr>
<td>Relax anal sphincter</td>
<td>Digital stimulation</td>
</tr>
<tr>
<td>Elicit peristalsis</td>
<td>Suppository</td>
</tr>
</tbody>
</table>
How do clients reach goals of a UMN program?

Through a bowel management training protocol!
# Lower Motor Neuron

<table>
<thead>
<tr>
<th>Goal</th>
<th>How?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm, formed stool</td>
<td>Diet &amp; medication</td>
</tr>
<tr>
<td>Evacuate stool</td>
<td>Manual disimpaction</td>
</tr>
<tr>
<td>Avoid leaking</td>
<td>Stool consistency</td>
</tr>
</tbody>
</table>
How do clients reach goals of a LMN program?

Through a bowel management training protocol!
Positioning

- Lay on left side
- Allow transverse & descending colon to empty
Positioning

- Sit on commode
- Gravity assist with evacuation
- Relaxation of puborectalis muscle
Stage Two: Personalized Bowel Diary

- Goal is to empower the client
- Act as a team communication tool
- Aid in transition home
### MY BOWEL DIARY

<table>
<thead>
<tr>
<th>Date:</th>
<th>Start Time:</th>
<th>End Time:</th>
<th>Total Time:</th>
</tr>
</thead>
</table>

#### POSITION
- [ ] Left side lying
- [ ] Right side lying
- [ ] Drop arm commode
- [ ] Toilet
- [ ] Shower chair

#### STIMULATION METHOD
- [ ] Manual Disimpaction
- [ ] Digital stimulation
- [x] self performed
- [ ] nurse
- [ ] Medication

**Oral Meds:**

**Suppository:**

**Enema:**

#### ASSISTIVE TECHNIQUES
- [ ] abdominal massage
- [ ] push-ups/pressure release
- [ ] bending
- [ ] Valsalva Maneuver

#### RESULT TIMES

1st stool:

Last stool:

---

**FIM SCORES**
Bowel Diary

MY BOWEL DIARY

Date: ________________

STOOL SIZE
- [ ] Small
- [ ] Medium
- [ ] Large
- [ ] Extra Large

STOOL CONSISTENCY
- [ ] Liquid/Loose
- [ ] Pasty
- [ ] Formed
- [ ] Soft
- [ ] Firm
- [ ] Hard

STOOL COLOR

NOTES/COMMENTS

__________________________
__________________________
__________________________

23
Bowel Diary

**MY BOWEL DIARY**

Date: _________________

**EVENTS AND DISCOMFORTS**

Were there any unplanned bowel movements? Describe.

[Blank lines for description]

Did you experience abdominal cramping?

[Blank lines for description]

Did you experience pain or muscle spasms?

[Blank lines for description]

Was there evidence of pressure ulcers, hemorrhoids, or bleeding?

Please describe.

[Blank lines for description]

**BOWEL MANAGEMENT**

**WHAT DID YOU DO DURING THE BOWEL MANAGEMENT PROGRAM?**

- [] Clothing management
- [] Toilet transfer or Bed mobility
- [] Digital Stimulation
- [] Suppository insertion
- [] Clean up
- [] Everything

**What do you need to work on to improve your independence?**

[Blank lines for description]

**Are you satisfied with your bowel management program?**

[Blank spaces for rating from 1 to 6, with options for not at all or very satisfied and a number 25 at the end]
Encourage self-scoring

**FUNCTIONAL INDEPENDENCE MEASURE SCORE**

**FIM 6 — INDEPENDENT!**
CONGRATULATIONS! You are able to complete ALL parts of your bowel program by yourself: you insert a suppository, you do digital stimulation, and your clean up afterwards (change the bed pad, empty bucket or flush the toilet).

**FIM 5 — HELP WITH SETUP**
You are able to insert the suppository and do the digital stimulation. A helper sets up your supplies (opens and lubricates the suppository, hands you gloves and adaptive tools). Or your helper gives you cues or reminds you what to do. Or, your helper cleans up the stool by changing the bed pad or emptying the bucket.

**FIM 4 — A LITTLE HELP NEEDED**
Your helper puts in the suppository but you do the digital stimulation. Or, you put insert the suppository and do most of the stimulation, the helper checks when you are finished to be sure all stool has been removed.

**FIM 3 — MORE HELP NEEDED**
You can insert the suppository but your helper checks to be sure it is all the way in. You can do about half the digital stimulation and your helper does the rest.

**FIM 2 — LOTS OF HELP NEEDED**
You make a good attempt to insert the suppository or do the digital stimulation. Or, you start the bowel program but get tired and your helper completes most of the program for you.

**FIM 1 — DEPENDENT**
Your helper inserts the suppository and does the digital stimulation. Or, you have an unplanned bowel movement and your helper changes your clothes and soiled linens.
Preliminary Data

• N = 10
• Not yet compared to previous clients
• Three outcome measures: FIM change
  • Bowel
  • Toileting
  • Toilet Transfer
Bowel FIM change

Average Bowel Scores

- Admission
- Day 7
- Day 14
- Day 21
- Day 28
- Discharg
Toileting FIM change

The graph shows the average toileting scores over time, with distinct peaks at Day 28 and Discharge, indicating significant improvement in toileting abilities post-admission.
Toilet Transfer FIM change

Average Transfer Scores

Error bars: 95% CI

Admission  Day 7  Day 14  Day 21  Day 28  Discharge
Future Steps

• Adapt the program for other diagnoses.
• Continue to improve team communication regarding bowel care.
• Our hope:
  • Accident-free rehab
  • Brief-free rehab
  • Clients confident to manage bowel program upon discharge (home or skilled facility).
QUESTIONS?

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http://pva.cds.pesgce.com/


Paralyzed Veterans of America
Consortium for Spinal Cord Medicine

• Clinical Practice Guidelines: for medical staff
  • Specific guidelines for SCI bowel management
• Consumer Guidelines: for patients
  • http://www.scicpg.org/