



## Knowledge Translation Strategies for Engaging Stakeholders: Lessons Learned from the MSKTC

Cindy Cai, Ph.D., Co-Project Director of the Model Systems Knowledge Translation Center (MSKTC)

Claire Kalpakjian, Ph.D., Co-Investigator of the University of Michigan SCI Model Systems (U-M SCIMS)

Cynthia Overton, Ph.D., Co-Project Director of the Model Systems Knowledge Translation Center (MSKTC)

# Disclosures

---

This continuing education activity is managed and accredited by Professional Education Services Group in cooperation with ACRM. PESG, ACRM, and all accrediting organization do not support or endorse any product or service mentioned in this activity.

PESG and ACRM staff has no financial interest to disclose.

# Disclosures

---

The Model Systems Knowledge Translation Center (MSKTC) is funded by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) under grant #90DP0012-01-00. The University of Michigan Spinal Cord Injury Model System is funded by NIDILRR under grant #90AR5020-01-00. The opinions contained in this presentation are those of the presenters and do not necessarily reflect those of the U.S. Department of Health and Human Services or NIDILRR.

# Learning Objectives

---

At the conclusion of this activity, the participant will be able to:

1. Implement best practices in developing and testing consumer products with individuals with SCI, TBI, and burn injury.
2. Apply methods and processes to design and manage a large, scoping review to identify gaps in knowledge in rehabilitation sub-populations.
3. Identify KT strategies for informing policy through research by engaging policymakers.
4. Adapt and execute an array of strategies to present and disseminate consumer-friendly resources that support individuals with SCI, TBI, and burn injury.

# Session Overview

---

- MSKTC background
- Developing and testing consumer products
- Designing and managing a large scoping review
- Engaging policymakers
- Disseminating products to the field
- Open discussion

# MSKTC Overview

---

- Funded by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)
- Supports the Model System Center Programs
  - 14 Spinal Cord Injury (SCI) Model Systems and 1 SCI Data Center
  - 16 Traumatic Brain Injury (TBI) Model Systems and 1 TBI Data Center
  - 4 Burn Injury Model Systems (Burn) and 1 Burn Data Center
- Helps Model Systems research throughout the KT process with:
  - Research Support
  - Consumer product development
  - KT Technical Assistance
  - Outreach and Dissemination

# MSKTC Products

---

- **Research Products**
  - Systematic reviews
  - Publication database
- **Consumer products**
  - Factsheets
  - Infocomics
  - Quick reviews
  - Videos
  - Slideshows
  - Hot topic modules
- **KT products**
  - KT tools
  - Webinars
  - Online courses



# Developing and Testing Consumer Products

# Conduct Research to Understand Consumer Needs

---

- Conduct qualitative research to understand consumer health information needs with:
  - Individuals with SCI, TBI, and burn and their caregivers
  - Clinicians
  - Policymakers
- Consumer surveys to gather consumer input on future factsheet topics

# Consumer Survey on Factsheet Topics



## What do you need to know about living with a Spinal Cord Injury?

Tell us what you think in this brief survey!

We are seeking your ideas on topics for spinal cord injury (SCI) factsheets that people with SCI and their families would like to know more about. The Model Systems Knowledge Translation Center (MSKTC; [www.msktc.org](http://www.msktc.org)) will use the results from this survey to develop factsheets and information materials about living with an SCI. The MSKTC is a project funded by the National Institute on Disability and Rehabilitation Research.

Participation in this survey is voluntary and you may stop at any time. All individual responses will be kept confidential. Your name will not be used in any summary reports that result from this survey and no comments will be linked to you. There are no risks to your participation.

If you have questions about this survey or the MSKTC, please contact Dr. Cindy Cai ([msktc@air.org](mailto:msktc@air.org), 202-403-6929). If you have questions about your rights as a survey participant, please contact the Chair of AIR's Institutional Review Board at [IRBChair@air.org](mailto:IRBChair@air.org), or call toll free at 1-800-634-0797.

Thank you for your input!

Next



# Consumer Survey on Factsheet Topics

**We are in the process of developing factsheets on 5 other topics:**

1. How to Talk about Your Injury
2. Lifestyle (weight/physical activity)
3. Caregiver Issues
4. Memory Loss
5. TBI & Vocational Rehabilitation

**Please let us know other topics that you would like to learn about, starting from the topic you are most interested in.**

1.
2.
3.

**If you have more than 3 topics in mind, please use the box below for additional topic suggestions and/or comments:**

# SCI Consumer Factsheet Topic Survey Results

---

- Recovery and Treatment after SCI
- Daily Activities Living with SCI
- Community Integration
- Effects of SCI & Other Illnesses
- Technology for SCI
- Family and Relationships
- Policy and SCI

# TBI Consumer Factsheet Topic Survey Results

---

- Effects of TBI & Other Illnesses
- Social Life
- Treatments and rehabilitation
  - Education and Assistance for caregivers
- Family life and parenting
- Personality
- Cognition
- Legal Issues and Insurance
- Young Adults & Adjustment
  - Cognitive therapies
- Long-term effects and planning
- Interacting with health care professionals

# Burn Consumer Factsheet Topic Survey Results

---

- Burn and Recreation
- Burn and Sexuality
- Childhood burns in adulthood
- Healing of scars and grafts (what to expect)
- Resources related to amputees that need home adjustments
- Scar education - when does it mature? When will it stop being red? When will it stop being sensitive?
- Common meds for burn injury and effects to body (i.e. loss of hair)
- Nerve Pain
- Facial Burns & Scar tissue, splinting (masks); facial stretching, mouth devices, skin care (showing etc.)
- Cosmetics (make-up, personal appearance, grooming, etc.)
- Information on antibiotics post-burn
- Burns and Workman's Comp.
- Testimonials – i.e.: "4 months after my burn, I could not ?, but 6 months later after doing ? I could ?"

# Principles in Consumer Product Development

---

- Understand the objectives of consumer products
  - To help consumers understand the change in their bodies and what is causing the change to happen.
  - To understand their bodies and any medical terms about the injury so that they can communicate effectively with doctors and other clinicians.
  - To understand what options are available and where choices are limited— especially what is in consumers' control and what is not.
  - To understand the tradeoffs and choices of an action well enough to make a decision about what should be done.

# Principles in Consumer Product Development

---

- Develop content to help consumers to:
  - Take actions
  - Manage emotional impact of the text
  - Increase self-efficacy



# Principles in Consumer Product Development

---

- Use plain language writing style
  - Using plain language is not “dumbing down,” and it is not just about reading level.
  - Plain language is more than words
  - Reading level goal: sixth to eighth grade as determined by the Flesch-Kincaid Grade Level Test.
  - Readability goal: 75 or higher.
- Conduct cognitive testing
  - Helps make sure information is usable and is understood as intended by the audience.

# Principles in Consumer Product Development

- Present information in a clear way to the readers
- Include images or pictures to aid comprehension
- Use design elements to promote branding

**Respiratory Health and Spinal Cord Injury**  
August 2012

**What does the respiratory system do?**  
The respiratory system (or pulmonary system) is responsible for breathing. The system enables you to take oxygen into your blood and release carbon dioxide. Your body needs the oxygen to survive, and carbon dioxide must be removed to avoid the buildup of acid in your body.

**How does the respiratory system work?**  
You breathe because without breathing, you die. But your brain controls everything about the activity. Your brain sends signals down your spinal cord to the muscles around your chest and to the diaphragm to breathe for you.

**How does spinal cord injury impact the respiratory system?**  
Spinal cord injury can damage the nerves that control the muscles that breathe for you. This can lead to breathing problems that can be life-threatening. If you have a spinal cord injury, you may need a ventilator to breathe for you.

**NSRTC** National Spinal Cord Injury Resource Center

**TBIMS Spasticity and Traumatic Brain Injury**  
February 2012

**What is spasticity?**  
Spasticity is the uncontrolled tightening (increased muscle tone) caused by abnormal signals from the brain. It is a condition or symptom of various brain injuries (TBI). People with spasticity may have stiff muscles that are uncomfortable and will not relax or stretch. This may also lead to muscle weakness, loss of motor control (for example, being unable to pick up an object), and sometimes reflexes.

**What you need to know**

- Many people with TBI often do not have spasticity or have only moderate spasticity.
- Your brain injury may affect the muscles in your body to breathe, eat, swallow, and control bladder. The muscles may "lock" or tighten suddenly. You may feel the effect spasticity (muscle tone) over time.
- Spasticity may not be noticeable and may not always need treatment.
- Spasticity may come and go. It may be worse in the morning or when you are tired. It can interfere with sleep or limit the ability to function.
- Spasticity may cause you to go. It may be worse in the morning or when you are tired. It can interfere with sleep or limit the ability to function.
- Spasticity may cause you to go. It may be worse in the morning or when you are tired. It can interfere with sleep or limit the ability to function.
- Spasticity may cause you to go. It may be worse in the morning or when you are tired. It can interfere with sleep or limit the ability to function.

**Understanding Your Body How Muscles Work**  
Your brain communicates through your spinal cord and nerves to your muscles and causes them to contract and relax. After brain injury, the messages between brain and muscles may become complicated leading to unwanted muscle contractions.

**What are the symptoms of spasticity?**  
The symptoms and degree of spasticity are different in each person and can include:

- Sudden, uncontrolled tightening or locking of a limb, or jerking of muscles in the limb (arm, leg, and abdomen).
- Intermittent (intermittent) reflexes, such as a muscle spasm when the arm or leg is lightly touched.
- Stiff or tight muscles or pain, such as that is difficult to relax or stretch. This is more pronounced than normal muscle tightness when a person sits for a long period of time in spasticity. The tightness is so tight that it is difficult to relax or stretch.
- Muscle tightness during activity, making it difficult to control movement.

**TBIMS** Traumatic Brain Injury Model System

**Exercise After Burn Injury**  
August 2012

**How does a burn injury affect your body?**  
A burn injury causes damage to your body. Your heart and lungs may not work as well as before. Your bones may not be as strong. Remember that muscles get weaker a smaller amount when they are not used. Being on your back probably means you have some muscle loss. The rest of your body may lose 1% of your muscle.

**Why exercise is important?**  
The sooner you begin exercise, the better. Being up, getting out of bed, and walking will help you get on top of the hospital routine. Being active is important.

- Help your breathing.
- Help your body to fight infections, the pneumonia.
- Improve your flexibility and ability to move.
- Lower your risk of developing clots or conditions that limit your ability to move.
- Make it easier to take care of your everyday activities.
- Give you a sense of well-being.

**What can I do?**  
The chart below shows the types of exercises that can benefit you. Please consult your physician before engaging in these activities.

| Exercising                  | Type of Exercise or Activity   |
|-----------------------------|--|
| • Walking                   | • Walking is an important part of your recovery program.<br>• Standing increases flexibility, which is important for preventing and treating pneumonia.<br>• The goal of standing is to move the joint in the joint about the side of the joint.<br>• Walk for 10 to 20 minutes in 2 to 3 minutes. |
| • Range of motion exercises | • Range of motion exercises are an important part of your recovery program.<br>• Range of motion exercises are an important part of your recovery program.<br>• Range of motion exercises are an important part of your recovery program.  |
| • Aerobic activities        | • Aerobic activities are an important part of your recovery program.<br>• Aerobic activities are an important part of your recovery program.<br>• Aerobic activities are an important part of your recovery program.   |
| • Strength training         | • Strength training is an important part of your recovery program.<br>• Strength training is an important part of your recovery program.<br>• Strength training is an important part of your recovery program.   |

**NSRTC** National Spinal Cord Injury Resource Center



This fact sheet offers basic information about how the respiratory system changes after spinal cord injury, how those changes may impact health, and how you can better manage your health.

## What does the respiratory system do?

Your respiratory system (or pulmonary system) is responsible for breathing. This system enables you to inhale oxygen into your blood and exhale carbon dioxide. Your body needs the oxygen to survive, and carbon dioxide must be removed to avoid the build-up of acid in your body.

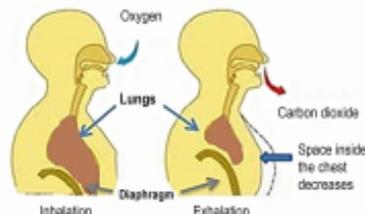
## How does the respiratory system work?

You normally breathe without thinking about it, but your brain is carefully coordinating this activity. Your brain sends signals down your spinal cord to the phrenic nerves which start at the 3rd, 4th, and 5th cervical spinal levels to contract the diaphragm.

- You can learn more about spinal nerve function in the fact sheet, "Understanding Spinal Cord Injury, Part 1 – The Body Before and After Injury."

Your diaphragm is the dome-shaped muscle located under each lung (at the bottom of your chest) and is the primary muscle used for inhaling. The diaphragm moves down as it contracts.

Your lungs, rib cage and abdomen (belly) expand as air is drawn into (inhaling) your lungs through your nose and mouth. Air travels through the main airway (the trachea) and smaller airways (a series of tubes) that lead to the air sacs. Air sacs in your lungs transfer oxygen from the air to your blood. Your diaphragm moves up to where it started as it relaxes after inhalation. Your lungs, rib cage and abdomen (belly) get smaller as the muscles of inhalation relax, pushing carbon dioxide out (exhaling) through your nose and mouth.



You normally need more muscle strength, or force, to help with breathing when you exercise or cough. To provide this added assistance, particularly to help with exhaling forcefully during a cough, your brain sends signals down your spinal cord and out through the nerves coming from the thoracic portion of the spinal cord to direct your abdominal muscles (over your belly) and intercostal muscles (between the ribs).

- Coughing is important because you produce small amounts of mucus in your lungs every day. Coughing helps to remove the mucus and prevent mucus build-up that can block the airways leading to the air sacs in your lungs that absorb the oxygen from the air. When you cough, the muscles responsible for most of the force are the abdominal muscles.

## How does spinal cord injury impact the respiratory system?

Signals sent from your brain can no longer pass beyond the damage to the spinal cord, so your brain can no longer control the muscles that you would normally use for inhaling and exhaling. The extent of your muscle control loss depends on your level of injury and if there is complete or incomplete spinal cord damage.

If you have a complete high cervical injury that involves the spinal cord at or above the cervical 3rd, 4th, and 5th spinal nerves, you may have a loss of or weakness in diaphragm function depending on the extent of damage. You may even need a tracheostomy (an opening through the neck into the

The Spinal Cord Injury Model System is sponsored by the National Institute of Disability, Independent Living, and Rehabilitation Research, U.S. Department of Health and Human Services' Administration for Community Living. Opinions expressed in this fact sheet are not necessarily those of the granting agency. (See <http://www.msctc.org/sci/model-system-centers> for more information).



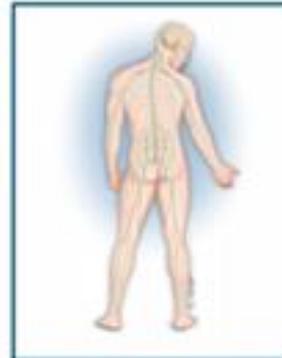
*This fact sheet tells you about how to manage spasticity (muscle tightening) after your brain injury.*

## What is spasticity?

Spasticity is the uncontrolled tightening (increased muscle tone) caused by disrupted signals from the brain. It is common in persons with severe brain injuries (TBI). People with spasticity may feel as if their muscles have contracted and will not relax or stretch. They may also feel muscle weakness, loss of fine motor control (for example, being unable to pick up small objects), and overactive reflexes.

## What you need to know

- Many people with TBI either do not have spasticity or have easily controlled spasticity.
- Your brain injury may cause the muscles in your body to become stiff, overactive, and difficult to stretch. The muscle may "spasm" or tighten suddenly. Doctors call this effect spasticity (pronounced spas-TIS-it-ee).
- Spasticity may not be bothersome and does not always need treatment.
- Spasticity may come and go. It may be worse during certain activities or it may become worse at night. It can interfere with sleep or limit the ability to function. When problems such as these arise, there is more need to consider treating it.
- Severe spasticity may cause almost continuous spasms and can cause permanent shortening of muscles, making even simple movements difficult.
- There are ways to treat spasticity or relax muscles, ranging from controlling triggers to taking medicines.
- When only a few muscles are affected, focal treatments such as nerve blocks and botulinum toxin injections (described below) may be considered. There may also be surgery options.



## Understanding Your Body: How Muscles Work

Your brain communicates through your spinal cord and nerves to your muscles and causes them to contract and relax. After brain injury, the messages between brain and muscles may become unregulated leading to unwanted muscle contractions.

## What are the symptoms of spasticity?

The symptoms and degree of spasticity are different in each person and can include:

- Sudden, involuntary tightening or relaxing of a limb, or jerking of muscles in the trunk (chest, back, and abdomen).
- Hyperactive (overactive) reflexes, such as a muscle spasm when the arm or leg is lightly touched.
- Stiff or tight muscles at rest, so that it is difficult to relax or stretch. This is more pronounced than normal muscle tightness when a person sits for a long period of time. In spasticity, the tightness is so high that it is difficult to stand or walk.
- Muscle tightness during activity, making it difficult to control movement.

The Traumatic Brain Injury Model System Program is sponsored by the National Institute on Disability and Rehabilitation Research, Office of Special Education and Rehabilitative Services, U.S. Department of Education. (See <http://www.msktc.org/tbi-model-system-centers> for more information)

# Exercise After Burn Injury

April 2015

BURN Fact Sheet

This fact sheet explains the importance of exercise or movement after a burn injury. The information describes what activities you can do to make your muscles stronger and keep your joints moving.

## How does a burn injury affect your body?

A burn injury causes stress to your body. Your heart and lungs may not work as well as before. Your bones may not be as strong. Remember that muscles get weak or smaller when they are not used—being on bed rest probably caused you to lose some muscle. For each day of bed rest people can lose 1% of their muscle.

Also, as your burns heal you may notice that your skin feels tighter. You may not be able to move your joints as far and as freely as before. This tightness and lack of movement may make it harder to take care of your everyday activities like bathing, dressing, and eating.

## Why exercise is important?

The sooner you begin everyday activity, the better. Sitting up, getting out of bed, and walking will help you get out of the hospital sooner. Being active or exercising will:

- Help your breathing
- Help your body to fight infections, like pneumonia
- Improve your flexibility and ability to move
- Lower your risk of developing scars or contractures that limit your ability to move
- Make it easier to take care of your everyday activities
- Give you a sense of well-being

## What can I do?

The chart below shows the types of exercises that can benefit you. Please consult your physician before engaging in these exercises.

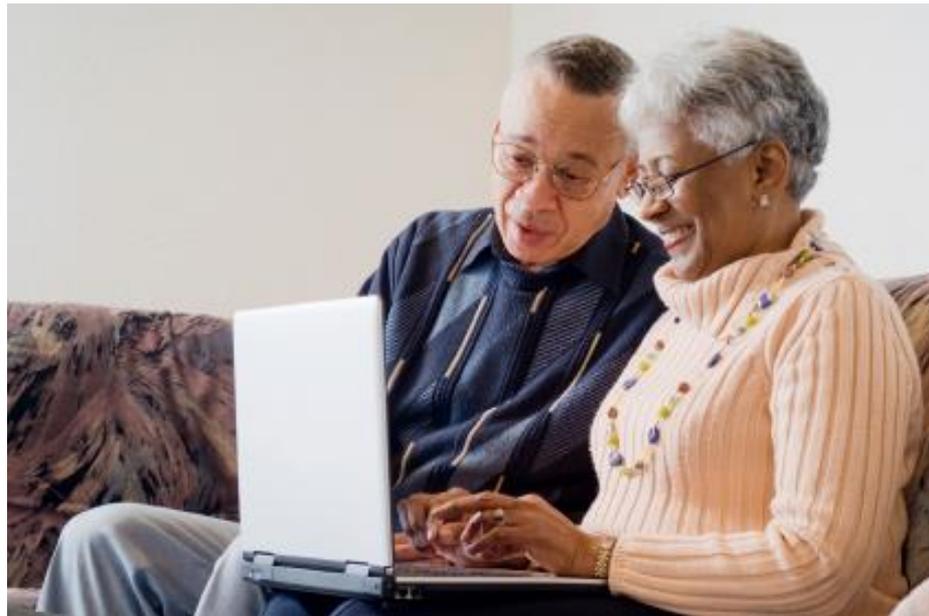
| Type of Exercise or Activities  |  |
|---|--|
| Stretching  | Stretching is an important part of your exercise program. <ul style="list-style-type: none"><li>• Stretching increases flexibility, which is important for preventing and treating contractures.</li><li>• The goal of stretching is to move the joint to the point where the skin stretches.</li><li>• Hold the stretch for 20 seconds to 2 minutes.</li></ul> Relax and repeat three times.  |
| Aerobic activities make your heart beat faster and can make your heart, lungs, and blood vessels stronger and more fit. | Walking is an easy way to get aerobic exercise. <ul style="list-style-type: none"><li>• Walk outside or on a treadmill inside.</li><li>• Start slow.</li><li>• Increase the time you walk by about 1 minute per day.</li><li>• Build up to walking 30 minutes to 1 hour three times a week.</li><li>• You should feel as if you are working, but you should not be so short of breath that you can't talk.</li></ul> When cleared by your doctor, try using a stationary bike or swimming. |
| Strengthening activities make your muscles do more work than usual and make your muscles stronger.                      | Resistance training or muscle strengthening is exercise that uses weights, elastic bands, or your own body weight. Weights don't need to be heavy. They just need enough tension to raise your heart rate and tire your muscles. Yoga, Tai Chi, or Pilates are also ways to make your muscles stronger and keep you moving.  |

The Burn Model Systems are sponsored by the National Institute on Disability and Rehabilitation Research, Office of Special Education and Rehabilitative Services, U.S. Department of Education (See <http://www.msktc.org/burn/model-system-centers> for more information).

# Strategies in Testing Consumer Products

---

- Goal of testing consumer products:
  - Do They Help Make Patient Decisions Easier?



# Strategies in Testing Consumer Products

---

- Develop a protocol to test products
  - Establish focus
  - Observe reading
  - Assess understanding
  - Confirm usefulness
  - Obtain general opinions



## Consumer Testing on *Pregnancy and Women with Spinal Cord Injury* Factsheet

July 2014

### Topic guide for consumer interviews

---

#### Procedures for informed consent and demographic questionnaire

IRB has granted the waiver of documentation of consent. There is no need to document consent during this interview. The willingness of the participants to be interviewed serves as consent for participation.

#### Testing materials include

- Phone number (1800 number if needed for participant)
- Audio recording equipment and batteries
- Interviewer clock
- Testing materials (1 per interviewee) to be sent to interviewee once interview is scheduled:
  - *Pregnancy and Women with Spinal Cord Injury* factsheet

#### Checklist of Procedures

1. Verbal consent from participant
2. Conducted interview with materials
3. Participant will receive monetary incentive via gift card post-interview
4. Type up notes

# Lessons Learned: Developing and Testing Products

---

- Involve consumers at all stages of development
- Develop content to help consumers take actions
- Understand that consumer product development is both science and art
  - Best practices presented
  - Branding and best design elements
- Developing tools to support researchers in developing consumer products

## Online Knowledge Translation Toolkit

*The Knowledge Translation (KT) literature suggests that multiple KT strategies combined can be most effective to promote change. The Online KT Toolkit provides guidelines on how to use the KT strategies that research has shown to be effective. These tools are designed primarily for researchers from the Model Systems but can be adapted by the general public. New tools will be added on this page as they are created throughout the duration of the grant.*

### Tools

#### Newsletters



Download our Newsletter templates and instructions

#### Press Releases



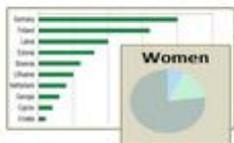
Download our Press Release template and instructions.

#### 508 Compliance



Download our 508 Compliance Tip Sheet.

#### Presenting Facts and Figures



Tools and resources to help model system researchers present facts and figures concisely and clearly. [Learn more...](#)

#### KT Webinars



View archived MSKTC webinars on topics related to Knowledge Translation (KT). [Learn more...](#)

#### Fact Sheet Writing Guidelines



Download our guidelines for writing fact sheets for consumers.

## What is Knowledge Translation?

Knowledge translation (KT) is the process by which new knowledge is transformed into information that benefits society through changed policies, behaviors, programs, or practices. KT is a systematic process that begins with collecting and analyzing the latest research findings. Then, research-based recommendations are made regarding best practices and treatments. Finally, this synthesized and translated knowledge is promptly and effectively disseminated to those who need it. [Learn more about Knowledge Translation...](#)

## Additional Resources on KT

- [Knowledge Translation Library at the National Center for the Dissemination of Disability Research](#)
- [Knowledge Translation Resource Clearinghouse](#)
- [Innovations in knowledge translation: The SPHERU KT casebook \(PDF\)](#)
- [Knowledge Translation Library at the National Center for the Dissemination of Disability Research](#)

# Designing a Protocol for a Large Scoping Review

# Why a Scoping Review?

---

- With the overarching purpose of mapping a body of literature, highlighting gaps in the existing literature, and identifying important constructs, **scoping reviews** can highly be useful in the context of disability and rehabilitation
  - For sub-populations within the larger disability population, literature may be only several decades old and for which little synthesis has occurred
  - Provide a foundation for moving a field forward by identifying key issues needing attention and a framework for guiding future work

# Women with Spinal Cord Injury

---

- Women with spinal cord injury (SCI) are a small minority of the SCI population (~20%)
  - Many studies do not distinguish their experience from men's
  - Women have different bodies, minds and experience than men
  - We wanted to learn more about the literature on this sub-population and make recommendations to shape future work

**Let's do a review!**



# Little Did We Know...

---

- ...the review would be so big and take so long to carry out!

**Here's the story of how we've done it and what we wish we'd know when we embarked on this**



# Leading a Large Scoping Review

- Communicate well and often
  - Talk to your reviewers, create consensus, get input
  - Use a comprehensive guide and update
- Create efficient processes, but pay close attention to details
  - Think streamlining without compromising quality
  - Be OK with getting it wrong, you can fix it
- Prepare to do the lion's share of the work, even with enthusiastic reviewers
- Be generous and invite trainees or other early career people to join your team
  - Let them lead papers on topics with a manageable number of papers

**Most reviews involve a handful of reviewers and have a relatively narrow scope.**

**THIS ISN'T ONE OF THOSE  
Leadership is one of the  
key to success!**



# Strategies to Manage the Review

---

- A large scoping review is broad by definition. Create *a priori* topics to park papers and organize review assignments.
- Use technology strategically! (Paper is so 1980s.) Find ways to centralize information and automate whenever you can.
- Create a review guide and update regularly. Put it *all* in there!
- Don't be afraid to revisit processes, admit you are off track or could do things more easily, and make changes.
- Pay attention to small details, they will undo you if you don't. Devise ways of tracking assignments and progress of reviews effortlessly-ish (see point #2 above).

# Creating *a priori* topics for parking papers

---

- Provided us with a general framework for organizing the review given our broad purpose, we developed, a priori, topics in which to “park” the articles selected for full review
- Allowed us to classify papers and gave us an organizational structure for assigning reviews based on reviewer expertise and the final analysis and reporting of data
- Authors created 9 topics based on their expertise in disability, rehabilitation and women’s health

- **Psychological functioning** - Depression, anxiety and other psychological disorders including substance abuse
- **Quality of life and adjustment** - Health-related quality of life, positive affect, and resilience
- **Secondary medical conditions** - Neurogenic bowel and bladder, skin and bone health, physical functioning and/or mobility, mortality, pain
- **Family life** - Parenting, social roles, marriage or other partnership and care giving
- **Community life** - Community participation and employment, and community access
- **Sexuality and sexual functioning** - Arousal, orgasm, intercourse, and sexual relationships
- **Reproductive health** - Fertility, birth control, pregnancy, birth and delivery, menstruation, menopause and hormone therapy
- **Access to care** - Routine checkups, mammograms and pelvic exams and compliance with treatment/rehabilitation
- **Health behaviors** - Self-care, exercise and/or physical activity, and leisure

# Online Data Capture and Management

---

- Many systematic reviews use simple spreadsheets to collect data
  - With 2 or 3 reviewers this is easy enough
- But...with 4,700 abstracts, 600+ articles and 14 reviewers we needed to be creative *and* harness the power of information technology!



<http://project-redcap.org/>

# The Wonders of REDCap for Reviews

---

- Survey capability and automated invitations
- Real-time data entry with branching logic and validation
- Audit trails
- Data export mechanism to common statistical packages
- Data importing capability
- Extensive reporting features
- Data quality reports

Although designed primarily for research projects, REDCap's features make managing a review a (relative) breeze!



# What the Review Assigner Sees

Where the magic happens. Once the coding\* for automatic invitations is set up, one click sends the review to the reviewer. Every time. Really.

The screenshot shows the REDCap interface for a review assignment form. The left sidebar contains navigation options: My Projects, Project Home, Project Setup, and Data Collection. The main content area displays the form for 'Women with SCI Review (Revised Aug 2015)'. The form includes a header with the University of Michigan logo and project name. Below the header, there are action buttons for 'Download PDF of instrument(s)' and 'Share instrument'. The main form area is titled 'Send Full Review Now' and contains the following fields:

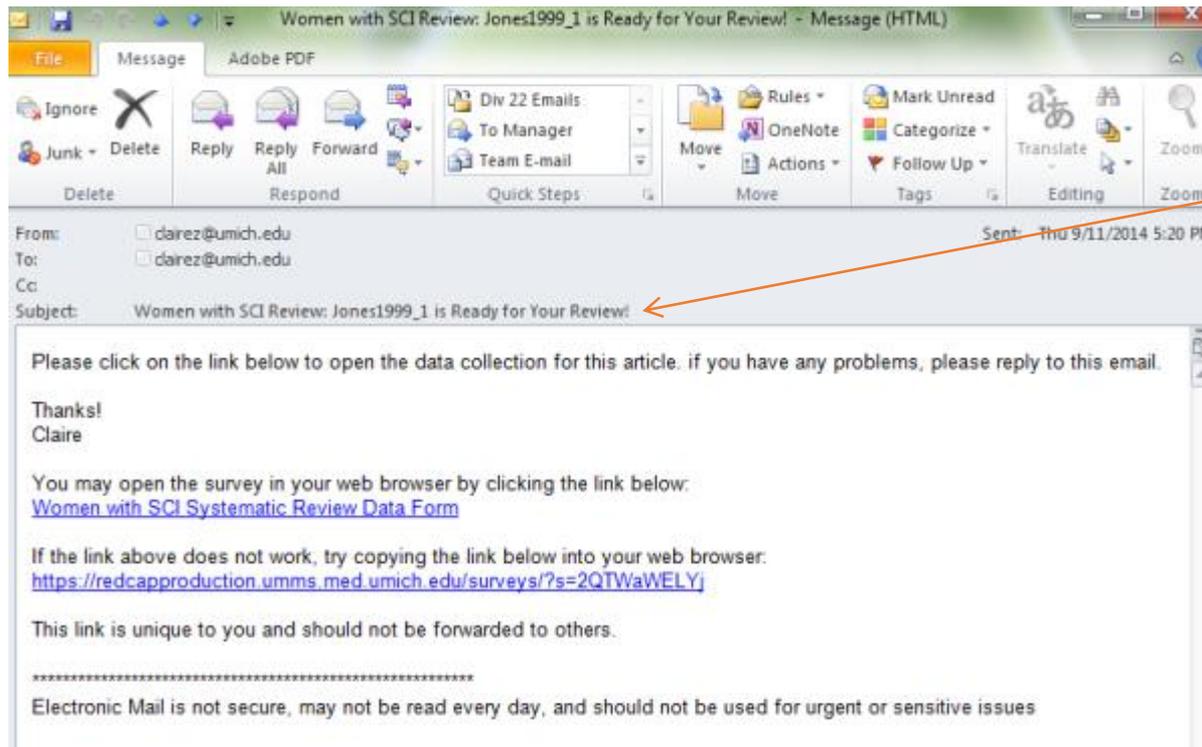
- Event Name: Record
- Article ID: Celik2014.603
- Has the article been uploaded to the Full Review form? (Radio buttons: Yes, No)
- Is the Full Review ready to be sent now? (Radio buttons: Yes, No)
- Form Status
- Complete? (Dropdown menu: Complete)

The 'Yes' radio button for 'Is the Full Review ready to be sent now?' is circled in red, indicating the action to be taken.

\*Coding is “send to [email] when ‘yes’ is selected in [sendnow]”

# Invitation to Review

The magical click sends an email to the assigned reviewer with a unique link to the online review form for that article.



The article name is in the subject line\* to help the reviewer manage their reviews.

**\*This auto-populates from the article's record "name"**

# What Reviewers See Online

Full Review Data Resize font:

Please complete your Full Review of Celik2014.603.

Thank you!

Thank you for being a part of this Review! In this section you may download a blank copy of the database form and the article you will review.

After downloading, you may save the form and return later. Just remember to write down the return code! (But if you lose it or forget, that's OK, just email Claire.)

If you would like to use a paper form and then transfer this to the online database, please download a copy of the form here.

Article for download [Celik2014.603.pdf \(0.14 MB\)](#)  Remove file

[Next Page >>](#)

[Save & Return Later](#)

The article PDF is uploaded directly into the online form, eliminating the need to go to another location and get the paper. Brilliant!

Full Review Data Resize font:

**Study Design**

Study Purpose  Expand  
Briefly describe goals and purpose of the study. 1-2 sentences should be enough

Does this study involve *only* women with SCI and no other groups?  No  Yes reset

Is a study question presented?  No  Yes reset  
This may not be written as a question. It is OK to be liberal here, if the question the study is asking or addressing is clear, however phrased, then mark "yes".

Are hypotheses presented?  No  Yes reset  
This is a straightforward question of whether or not hypotheses are given. Do not worry about inferring them from analysis; if they are stated (usually before methods) then the response is "yes".

Funding source type (select more than one if applicable)

- Federal, US
- Federal, Canada
- Federal, Europe
- Federal, Asia

# Monitoring Review Progress at a Glance

University of Michigan  
Michigan Institute for Clinical & Health Research

**Women with SCI Review (Revised Aug 2015)**

**Record Status Dashboard (all records)**

Displayed below is a table listing all existing records/responses and their status for every data collection instrument (and if longitudinal, for every event). You may click any of the colored buttons in the table to open a new tab/window in your browser to view that record on that particular data collection instrument. Please note that if your form-level user privileges are restricted for certain data collection instruments, you will only be able to view those instruments, and if you belong to a Data Access Group, you will only be able to view records that belong to your group.

Legend for status icons:  
● Incomplete    ● Incomplete (no data saved) ?  
● Unverified    ● Partial Survey Response  
● Complete    ✔ Completed Survey Response

Displaying record "Alexander2011.112" through "Zwerner1982.4601" of 42 records

Displaying: Instrument status only | [Lock status only](#) | [All status types](#)

| Article ID  | Review Assignment Record             | Send Quick Review Now Record         | Send Full Review Now Record          | Quick Review Data Rev1              | Full Review Data Rev1                | Full Review Data Rev2                 |
|---|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|
| <a href="#">Alexander2011.112</a> (Denise, Claire)            | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: green;">●</span> | <span style="color: grey;">●</span> | <span style="color: green;">✔</span> | <span style="color: green;">●</span>  |
| <a href="#">Anderson2007.158</a> (Susan, Claire)              | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: green;">●</span>  |
| <a href="#">Bassett2009.279</a> (Stephanie, Claire)           | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: green;">●</span>  |
| <a href="#">Blering-Sorensen2012.390</a> (Lisa, Claire)       | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: red;">●</span>   | <span style="color: green;">●</span>  |
| <a href="#">Black1998.404</a> (Stephanie, Claire)             | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: green;">●</span>  |
| <a href="#">Celik2014.603</a> (Peg, Claire)                   | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: green;">●</span> | <span style="color: grey;">●</span> | <span style="color: red;">●</span>   | <span style="color: red;">●</span>    |
| <a href="#">Ferreiro-Velasco2005.1187</a> (Catherine, Claire) | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: green;">●</span> | <span style="color: grey;">●</span> | <span style="color: red;">●</span>   | <span style="color: orange;">●</span> |
| <a href="#">Hailaahababaei2014.4638</a> (Heather, Claire)     | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: green;">●</span>  |
| <a href="#">Harrison1995.1590</a> (Catherine, Laura)          | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: green;">●</span>  |
| <a href="#">Kett1991.2049</a> (Stephanie, Claire)             | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: green;">●</span>  |
| <a href="#">Komisaruk1997.2144</a> (Heather, Claire)          | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: green;">●</span> | <span style="color: grey;">●</span> | <span style="color: green;">✔</span> | <span style="color: green;">●</span>  |
| <a href="#">Komisaruk2004.2147</a> (Catherine, Laura)         | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: green;">●</span>  |
| <a href="#">Kreuter1996.2221</a> (Peg, )                      | <span style="color: green;">●</span> | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: red;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>   |
| <a href="#">Kreuter2008.2217</a> (Susan, Claire)              | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: red;">●</span>    |
| <a href="#">Kreuter2011.2222</a> (Denise, Claire)             | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: red;">●</span>    |
| <a href="#">Layson1983.2403</a> (Susan, Laura)                | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span>  | <span style="color: grey;">●</span> | <span style="color: green;">●</span> | <span style="color: green;">●</span>  |
| <a href="#">Lombardi2007.2515</a> (Heather, Claire)           | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: green;">●</span> | <span style="color: grey;">●</span> | <span style="color: red;">●</span>   | <span style="color: red;">●</span>    |
| <a href="#">Lubbers2012.2534</a> (Nancy, Claire)              | <span style="color: green;">●</span> | <span style="color: grey;">●</span>  | <span style="color: red;">●</span>   | <span style="color: grey;">●</span> | <span style="color: red;">●</span>   | <span style="color: red;">●</span>    |

Clicking on any of these buttons will open that data collection form in the article's record.

Customized views allow for showing other variables in the dataset; these are the assigned reviewers.

# The Review Guide

---

- Use and regularly update the guide to provide the review team with the information they need to do the work.
- Keep track of modifications to the protocol.
- Include database codebooks, publication plan, questions that analyses can address, etc.
- Think big, not small! You won't remember so many details later... these reviews take a long time and no one's memory is that good.

## WOMEN WITH SPINAL CORD INJURY SYSTEMATIC REVIEW



### Review & Data Collection Guide

A collaboration of

- The University of Michigan Department of Physical Medicine and Rehabilitation, Ann Arbor, MI
- The Knowledge Translation Center at the American Institutes of Research, Washington, DC
- The University of Washington, Seattle, WA
- Center for Research on Women with Disabilities, Baylor College of Medicine, Houston, TX
- Baylor College of Medicine Department of Physical Medicine and Rehabilitation, Houston, TX
- Texas Institute for Rehabilitation Research, University of Texas Health Science Center, Houston, TX
- James A. Haley VA Hospital, Tampa, FL

Version 6, August 28, 2015

**Yes, that really does say “version 6”  
(It is currently 56 pages long)**

# Details, Details!

---

- No detail is too small when you are reviewing 4,700 abstracts, 600+ papers, have 2 blinded reviewers for each full review and 14 reviewers (that changes)
- Naming conventions
  - First author last name, year of publication, and abstract review number
- Tracking assignments and what is done and not done
  - Use an easy to sort, filter and redundant system to make assignments and track progress

# Tracking Progress

| Topic #                                     | Topic Name                                 | Count      | % of total |
|---|--|------------|------------|
| 1   | Psychological functioning, Substance abuse | 35         | 7%         |
| 2   | Quality of life and adjustment             | 43         | 9%         |
| 3   | Secondary medical conditions               | 241        | 48%        |
| 4   | Family life                                | 13         | 3%         |
| 5   | Community life                             | 34         | 7%         |
| 6   | Sexuality and sexual dysfunction           | 46         | 9%         |
| 7   | Reproductive health                        | 16         | 3%         |
| 8   | Access to care                             | 13         | 3%         |
| 9   | Health behavior                            | 33         | 7%         |
| 10  | Unsure - need to review full text          | 25         | 5%         |
| <b>Total # articles in full-text review</b> |  | <b>499</b> |            |

| Counts of Assignments | # Assigned |
|-----------------------|------------|
| Nancy                 | 7          |
| Heather               | 9          |
| Lisa                  | 4          |
| Gianna                | 15         |
| Catherine             | 43         |
| Susan                 | 8          |
| Stephanie             | 16         |
| Denise                | 7          |
| Peg                   | 7          |
| Susannah              | 15         |
| Ketlyne               | 16         |
| Tara                  | 8          |
| 0                     | 0          |
| Millie                | 11         |
| Mark                  | 11         |
| 0                     | 0          |
| 0                     | 0          |
| 0                     | 0          |
| 0                     | 0          |
| 0                     | 0          |

**Make it easy to see!**

**Counts of each topic and reviewer assignments that update as you go.**

# Formulas are Your Friend

|   | A               | B   | C          | D    | E   | J                                      | K          | L                   |
|---|-----------------|---|------------|------|---|--|------------|---------------------|
|   | Abstract Review | Citation PASTE IN FIRST!  | Author     | Year | Article name and record ID (formula ready to go!) | Reviewer 1 Email (this will autofill!) | Reviewer 2 | Topic Number REDCap |
| 1 | 24              | Abdelaziz OS, Marie A, Abbas M, Ibrahim M, Gabr H. Feasibility, safety, and efficacy of directly transplanting autologous adult bone marrow stem cells in patients with chronic traumatic dorsal cord injury: A pilot clinical study. <i>Neurosurgery Quarterly</i> . 2010;20(3):216-226. | Abdelaziz  | 2010 | Abdelaziz2010.24                                  | Lisa.Wenzel@memorialhermann.org        | Laura      | 3                   |
| 2 | 44              | Adegoke BO, Ogwumike OO, Olatemiju A. Dynamic balance and level of lesion in spinal cord injured patients. <i>African journal of medicine and medical sciences</i> . Dec 2002;31(4):357-360.  | Adegoke    | 2002 | Adegoke2002.44                                    | giannar@umich.edu                      | Laura      | 3                   |
| 3 | 46              | Adriaansen JJ, Post MW, de Groot S, et al. Secondary health conditions in persons with spinal cord injury: a longitudinal study from one to five years post-discharge. <i>Journal of rehabilitation medicine</i> . Nov 2013;45(10):1016-1022.   | Adriaansen | 2013 | Adriaansen2013.46                                 | giannar@umich.edu                      |            | 3                   |
| 4 | 49              | Agar E, Kennedy P, King NS. The role of negative cognitive appraisals in PTSD symptoms following spinal cord injuries. <i>Behavioural and Cognitive Psychotherapy</i> . 2006;34(4):437-452.   | Agar       | 2006 | Agar2006.49                                       | Heather.Taylor@memorialhermann.org     | Claire     | 1                   |
| 5 | 55              | Aguado Diaz AL, Alcedo Rodriguez MA, Garcia Carenas L, Arias Martinez B. [Spinal cord injured people: differences in psychological variables from a gender perspective]. <i>Psicothema</i> . Nov 2010;22(4):659-663.  | Aguado     | 2010 | Aguado2010.55                                     | nmerbitz@umich.edu                     | Claire     | 1                   |
| 6 | 71              | Aito S, Abbate R, Maruccci R, Cominelli E. Endogenous risk factors for deep-vein thrombosis in patients with acute spinal cord injuries. <i>Spinal cord</i> . 2007;45(9):627-   | Aito       | 2007 | Aito2007.71                                       | sparke@med.umich.edu                   | Laura      | 3                   |
| 7 | 86              | Aki S, Filiz M, Muslumanoglu L, Yuksel V, Sencan S, Berker E. The relationship between urinary infections and various clinical findings in patients with spinal cord lesion. <i>Fizik Tedavi Rehabilitasyon Dergisi</i> . 1996;20(4):169-173.   | Aki        | 1996 | Aki1996.86  | #N/A                                   |            | 3                   |
| 8 | 89              | Akkocnull Y, Aydin B, Cinar Y. Clean intermittent catheterization: Experience of patients with spinal cord injury. <i>Turkiye Fiziksel Tip ve Rehabilitasyon Dergisi</i> . 2011;57:288.   | Akkocnull  | 2011 | Akkocnull2011.89                                  | #N/A                                   |            | 3                   |
| 9 | 90              | Akkocnull Y, Ersoz M, Yildiz N, et al. The relationship between bladder management method and quality of life in patients with traumatic spinal cord injury. <i>Turkiye Fiziksel Tip ve Rehabilitasyon Dergisi</i> . 2012;58:100-   | Akkocnull  | 2013 | Akkocnull2013.90                                  | #N/A                                   |            | 3                   |

**Use quick formulas to generate article names, auto-populate emails**  
 (this can easily be transferred to a formatted spreadsheet for upload to REDCap)

# Selecting and Engaging Reviewers

---

- A big scoping review takes a village to accomplish!
  - Diverse expertise and background
  - Enthusiasm and willingness to be a team player
  - Offers trainees and junior faculty a chance to develop critical thinking skills and how to synthesize a body of work



# Strategies for Publications

---

- Because a large scoping review cannot be contained in one publication, plan carefully!
- Original (read: *naïve*) Plan
  - Publish a standard scoping review, a nice and tidy paper and move on

Then we started reviewing 4,700 abstracts and about 20% met criteria for inclusion...it was time to revisit the plan!



# Strategies for Publications

---

- New (read: *realistic*) Plan
  - Multiple papers. Not the norm, but how else would we juggle 9 topics and 600+ papers?
  - Publish a methods paper that detailed how we designed, res-designed, and managed this massive review with tips and strategies for other investigators
    - The paper I wish I had in 2010...
  - Publish separate papers on each topic
    - Decide the order you want to tackle topics and work sequentially or on two topics concurrently
    - Topics may be combined depending on results of abstract reviews
    - In the end much more efficient than conducting 9 separate reviews

# Lessons Learned

---

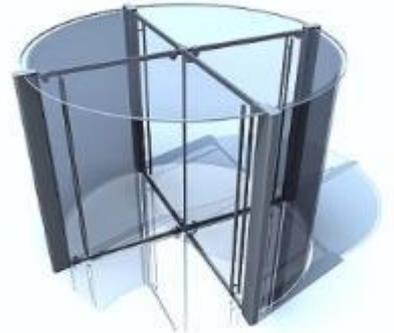
- Expect iterations of processes, procedures and protocols - Did we get it right the first time? Of course not...
  - The full review process underwent 2 revisions (and counting) and the database underwent 3 revisions (and counting)
  - The abstract review process underwent 3 revisions (and counting) and the database underwent 4 revisions (and counting)
  - The review guide underwent 6 revisions (and counting)



# Lessons Learned

---

- Expect exits and entries of reviewers
  - A core group generally sticks around
  - Others graduate, lose interest, get swamped
  - Keep your eyes open to offer an opportunity to join the review
- It will take you much longer than you planned
  - Expect taking 2 to 3 times longer than you planned
  - Don't make a lot of promises based on a timeline



# The Review Team

---

- **Claire Kalpakjian, PhD, MS**, University of Michigan (lead)
- **Catherine Wilson, PsyD**, James A. Haley VA Hospital
- **Susan Robinson-Whelen, PhD**, Center for Research on Women with Disabilities, Baylor College of Medicine; TIRR Memorial Hermann
- **Stephanie Silveiria**, University of Houston
- **Nancy Merbitz, PhD**, University of Michigan
- **Gianna Rodriguez, MD**, University of Michigan
- **Lisa Wenzel, MD**, TIRR Memorial Hermann, Baylor College of Medicine
- **Heather Taylor, PhD**, TIRR Memorial Hermann, Baylor College of Medicine
- **Margaret Nosek, PhD**, Center for Research on Women with Disabilities, Baylor College of Medicine; TIRR Memorial Hermann
- **Denise Fyffe, PhD**, Kessler Institute
- **Susannah Parke, MD**, University of Michigan
- **Ketlyne Sol, PhD**, University of Michigan
- **Mark Ziadeh, MD**, University of Michigan

# Engaging Policymakers

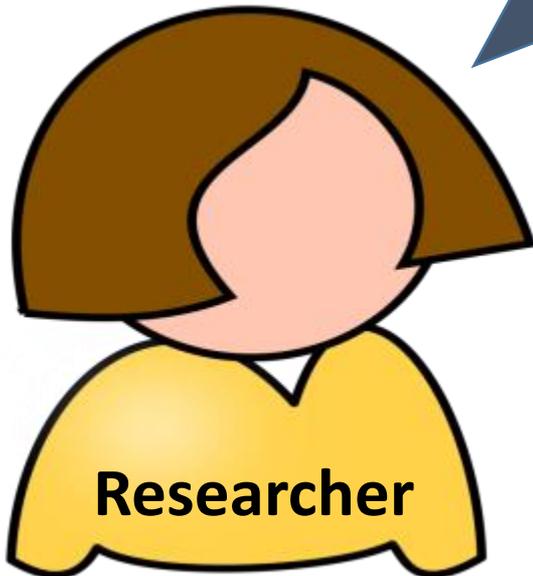
# Engaging Policymakers Course

---

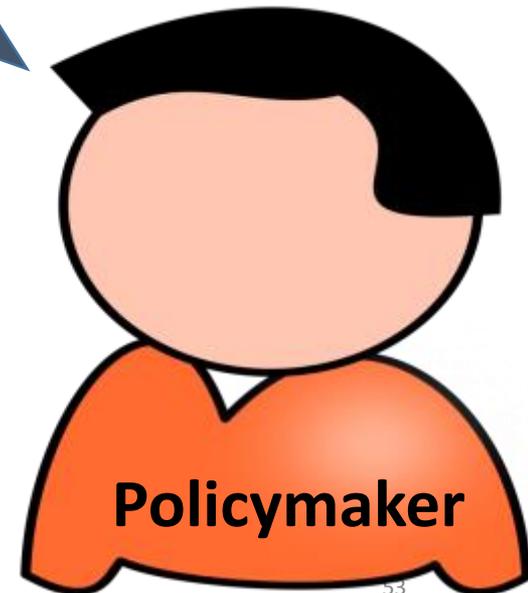
- 3 week online facilitated course
- Developed based on interest expressed by Model Systems researchers
- Focused on:
  - How policymakers access, understand, and use research
  - Strategies to engage with policymakers and key stakeholders
  - How to translate research into policy

# Conversation with a Policymaker

**My research tells you what to do. This is an important issue.**

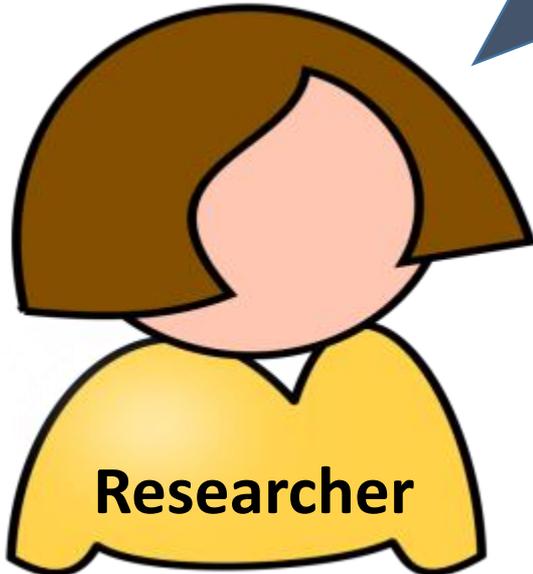


**I can't understand these data tables and I have about 20 important issues on my plate.**

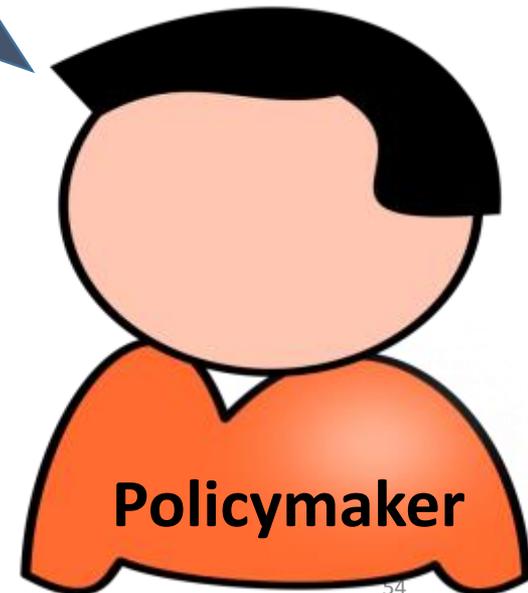


# Conversation with a Policymaker

I'll clarify the information for you...now you see how important this is.

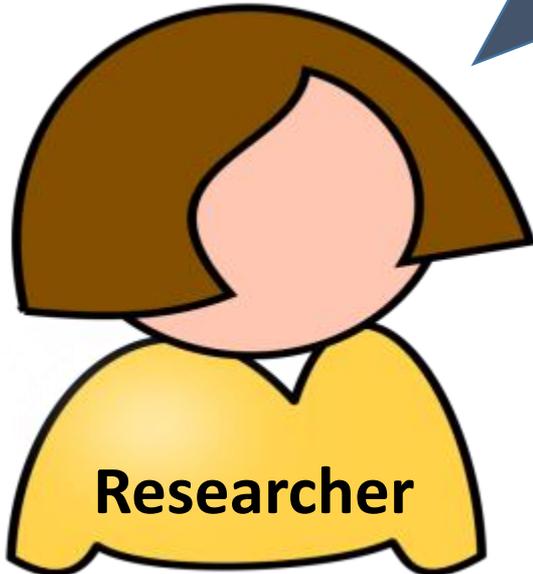


Ah, now I get it. But what's the return on investment? Why should I use my political capital to push for this change?

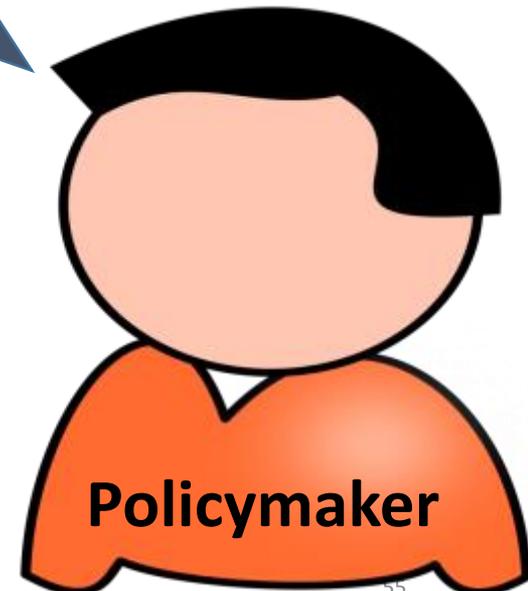


# Conversation with a Policymaker

Okay, here is the return on investment in terms of lowered healthcare costs and improved outcomes. Tell your colleagues to make a policy change.

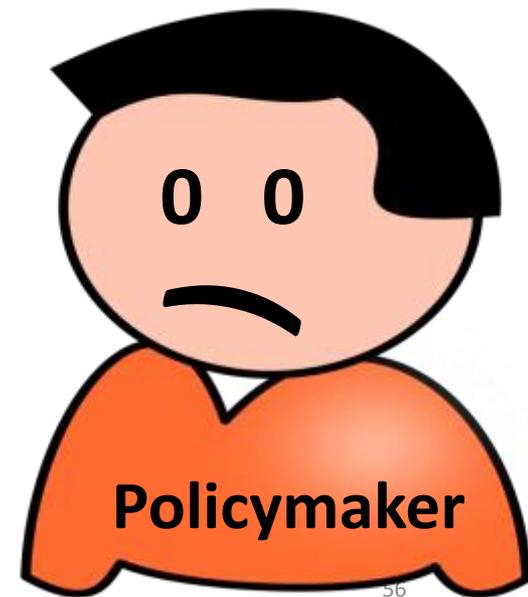
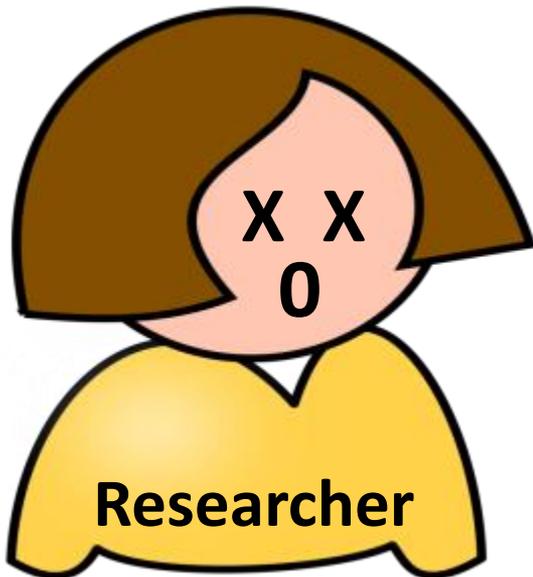


Great stuff—why don't you come back in 6 months when we're planning the budget. Right now, I don't have the funds.



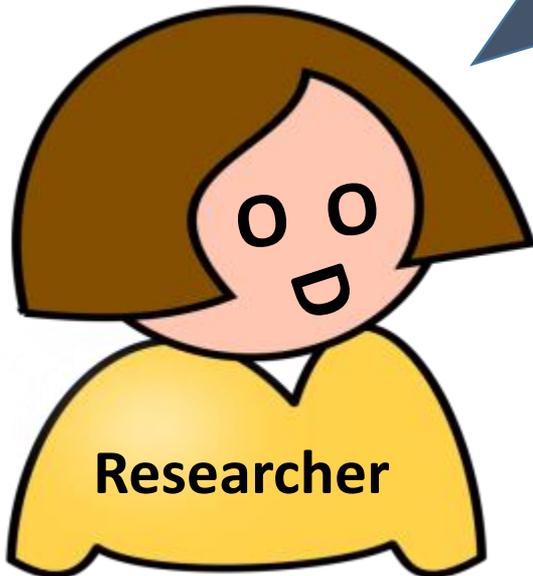
# Poor Researcher Response

**ARRRGGGGGGHHHHHH!!!!**

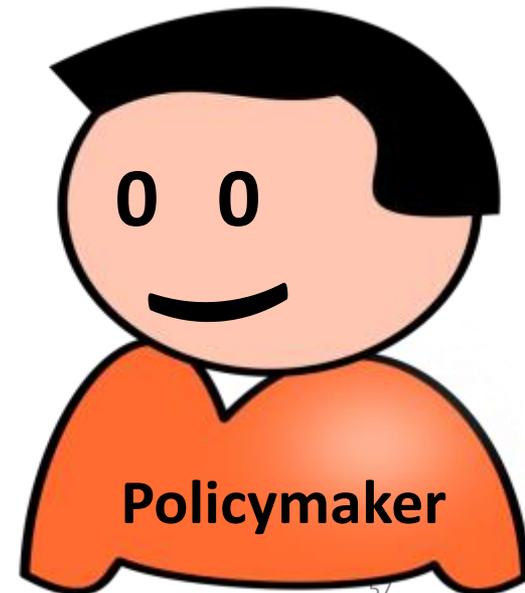


# Good Researcher Response

That sounds great, and I'd like to invite you and your colleagues to meet again to keep you in the loop on this topic. I'll share more information and see where I can help on this important issue.



Wonderful!  
Let's keep in touch.



# Course Take-Aways

---

- Give the information to policymakers the way *they* can understand it
- Don't assume policymakers will share your passion for the issue
- Become familiar with the policymaker's agenda and how your research aligns with their interests
- Always, always, always speak to return on investment (RoI)
- Every policy change has a cost—monetary or political—keep that in mind when engaging policymakers
- Relationships take time, so become a go-to expert for your policymaker

# Additional Tips

---

- Consider value of engaging policymakers
- Develop a policy “pitch”
- Identify a policy issue/implication of your research

# Resources offered through the MSKTC

---

- ▶ Tip Sheet: *The Value of Model Systems Research in the Policy-Making Process*
  - <http://tinyurl.com/MSKTCpolicy>
- ▶ Engaging Policymakers Self-paced course
  - Contact us for enrollment information:  
[MSKTC@air.org](mailto:MSKTC@air.org)

# Engaging Policymakers: Lessons Learned

---

- Researchers are busy!
- Course content is applicable to participants with a current policy issue in mind
- Research linked to special interests of policymakers can be a great entry point

# Disseminating Products to the Field

# Web Tour

<http://www.msktc.org>

---

- SCI Resources:  
<http://www.msktc.org/SCI>
- TBI Resources:  
<http://www.msktc.org/TBI>
- Burn Resources:  
<http://www.msktc.org/Burn>

# Dissemination Strategies

---

- Media Products
- eNewsletter, *Headlines from the MSKTC*
- eBlasts
- Social Media
- Brochures, Bookmarks, and other Hard Copy Materials
- Conference Exhibits
- Conference Presentations



Model Systems Knowledge Translation Center  
MSKTC.org



SCI Resources  
MSKTC.org/SCI



TBI Resources  
MSKTC.org/TBI



Burn Resources  
MSKTC.org/BURN

Free resources to Support Individuals Living With Spinal Cord Injury, Traumatic Brain Injury, and Burn Injury

SCI TBI Burn

The Model Systems Knowledge Translation Center is a national center that helps facilitate the knowledge translation process to make research meaningful to those with spinal cord injury (SCI), traumatic brain injury (TBI), and burn injury (Burn).



Model Systems Knowledge Translation Center

The MSKTC is a national center that helps facilitate the knowledge translation process to make research meaningful to those with spinal cord injury (SCI), traumatic brain injury (TBI), and burn injury (Burn).



SCI Resources  
MSKTC.org/SCI



TBI Resources  
MSKTC.org/TBI



Burn Resources  
MSKTC.org/BURN

www.MSKTC.org

# MSKTC Bookmark & Brochure

MODEL SYSTEMS KNOWLEDGE TRANSLATION CENTER

# MSKTC Exhibits



# Patient and Family Education

---

- Accreditation standards
- Automated tracking systems
- In-room viewing
- Discharge materials
- Rehabilitation tools

# Lessons Learned: Dissemination

---

- Take advantage of face-time
- Consolidate information
- Know end users' language and speak it
- Diversify outreach strategies

# Open Discussion

---



# Contact Information

---

**Cindy Cai, Ph.D.**

[ccai@air.org](mailto:ccai@air.org)

**Claire Kalpakjian, Ph.D.**

[clairez@med.umich.edu](mailto:clairez@med.umich.edu)

**Cynthia Overton, Ph.D.**

[coverton@air.org](mailto:coverton@air.org)

# Obtaining CME/CE Credit

---

If you would like to receive continuing education credit for this activity, please visit:

<http://acrm.cds.pesgce.com>

Please complete within 30 days of completion of course.