Building Capacity in Chronic Pain Management: from ECHO to the plinth/bedside

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Acknowledgements

- ECHO HUB team members for some of the slide content
  - Jane Zhao
  - Andrew Smith
  - Ruth Dubin
  - Andrea Furlan
Learning Objectives

At the end of this session, participant will be able to:

- Recall the ECHO project and describe how it facilitates capacity building and knowledge exchange among health care professionals engaged in the treatment of chronic non-cancer pain (CNCP) and other common, complex, and costly health conditions
- Describe a framework for approaching CNCP assessment and management
- Discuss CNCP management strategies
People need access to specialty care for their complex health conditions.

There aren't enough specialists to treat everyone who needs care, especially in rural and underserved communities.

ECHO trains and supports primary care clinicians to provide specialty level care. This means more people can get the care they need from their FHT health-care providers.

Patients get the right care, in the right place, at the right time. This improves outcomes and reduces costs.

ECHO = “Extension for Community Healthcare Outcomes”
What is Project ECHO?

- Using videoconferencing, it creates a medical community of learning by connecting an interprofessional specialist team (HUB) with healthcare providers (SPOKES/Community Partners) across the province on a regular basis.
- This helps to build specialty care capacity in underserved urban and rural communities.

https://www.youtube.com/watch?v=VAMaHP-tEwk
Methods - The 4 Pillars of ECHO

Use **Technology** to leverage scarce resources

Sharing “**best practices**” to reduce disparities

**Case based learning** to master complexity

Web-based database to monitor **outcomes**
A typical ECHO session:

- Weekly interactive videoconference sessions that connect primary care providers & specialist teams
- Sessions include Didactic + Case-Based learning
- Working together, the other Spokes and the Hub provide recommendations for the presenter
- “All teach, all learn” philosophy
Is this telemedicine?

- The ECHO model is not ‘traditional telemedicine’
- The treating physician retains responsibility for the management of the patient
Chronic Pain / Opioid Stewardship Hub

Rapid access to 14 health professions:

- Physiatry
- Pain medicine
- Addiction medicine
- Neurology
- Family medicine
- Psychiatry
- Psychology
- Nursing
- Occupational therapy
- Physical therapy
- Pharmacy
- Social work
- Chiropractic
- Embedded clinical librarian
### Curriculum Cycle 8
(20 sessions = 40 hours CME credits)

<table>
<thead>
<tr>
<th>CYCLE 8 (January - June 2018)</th>
<th>Sessions</th>
<th>CME hours</th>
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<tbody>
<tr>
<td>Module 1 Chronic Pain Fundamentals</td>
<td>5</td>
<td>10</td>
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<tr>
<td>Module 2 Opioids and Addictions</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Module 3 Management of Chronic Pain Conditions: Headaches; Low Back Pain; Movement and Physical Modalities; Central Sensitization; Putting it all together</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Module 4 Participant selected topics: Activating the family pet as a resource; Non-traditional Treatments; Cognitive Behavioural Therapy (CBT); Ehler’s syndrome and hypermobility; Cultural Safety and Pain; Cannabis</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>
Benefits of ECHO

Provider
• Acquire new knowledge & skills
• Increase confidence & competency
• Build community of practice

Patient
• Safe & appropriate care
• Increase quality of life
• Right place and time

Community
• Reduce disparities
• Retain providers
• Keep patients local
• Disseminate best practice

Healthcare system:
• Improved the patient experience of care
• Improve the health of populations
• Reduce the per capita cost of healthcare
A prospective cohort study found that HCV-positive patients treated by Project ECHO PCPs had similar sustained viral response rates as patients treated by specialists (NEJM - Arora et al., 2011)

A systematic review assessed outcomes reported according to Moore’s framework to evaluate outcomes of continuing professional development. Studies reported outcomes for the following areas:

- Satisfaction
- Knowledge
- Provider competence
- Provider performance
- Patient health

(Acad Med - Zhou et al., 2016)
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- **Describe a framework for approaching CNCP assessment and management**

- Discuss CNCP management strategies
Frameworks guiding assessment and management of CNCP

- Biopsychosocial approach to “Assessment and Management”
- Treating chronic pain—the 3 P’s:
  - Physical,
  - Psychological,
  - Pharmacological
- Five pillars of pain management
Biopsychosocial Model:

- Biopsychosocial approach is widely accepted as the most heuristic perspective to understanding and treating chronic pain disorders
- Focusses on both disease & illness
- Illnesses such as pain is viewed as the complex interaction between the:
  - Biological
  - Psychological (involves emotion and cognition)
  - Social factors

(Main & Williams 2002; Gatchel et al 2007)
The ideal treatment of CNCP*

Useful framework for making management suggestions

- Physical
- Psychological
- Pharmacological

SELF MANAGEMENT
ADDOP: The Five Pillars of Pain Management

- **Assess**: Symptoms and Risk
- **Define the problem**: where and what is it?
- **Diagnose**: the kind of pain and treat it
- **Other issues**: mood, anxiety, sleep, addiction, sex
- **Personal management**: self management

Pillar 1. Assess symptoms and risk

History:

- General history-demographics, comorbidities, previous medical history, medications, risk history, social history, function, family history

- Pain history
  - Location: neck, thoracic, lumbar, whole body
  - Intensity: use scale, pain right now, worst in 24hs., intensity in the back, intensity in the leg
  - Quality: aching, dull, burning, tingling, electrical shocks
  - Onset: Acute/Subacute/Chronic. Fall, accident, or fracture
  - Radiation: C-spine: up to the head, shoulders, hands L-spine: buttock, thigh, leg, foot, to the other side
  - Frequency: constant, intermittent
  - Associated symptoms: fever, chills, joint pain, numbness, motor weakness, bowel and bladder incontinence
  - Alleviating factors: sitting, lying down, heat/cold
  - Aggravating factors: exercise, posture, walking, going up stairs, cold, psychological stress
What not to miss?

"Wait a minute here, Mr. Crumbley... Maybe it isn't kidney stones after all."
Diagnostic Evaluation- Red Flags

Rule out red flag conditions

Symptoms:

- Neurological: major motor weakness, disturbance of bowel or bladder control, saddle numbness
- Infection: fever, risk of UTI, IV drug use, immune suppressed
- Fracture: trauma, osteoporosis risk
- Tumor: history of cancer, weight loss, fever, pain worse supine or at night
- Inflammation: morning stiffness > 1 hour, Age: < 20 years or > 50 years

The following factors are important and consistently predict poor outcomes:

1. Presence of a belief that back pain is Harmful or potentially severely disabling;
2. Fear-Avoidance behaviour and reduced activity levels;
3. Tendency to low Mood and withdrawal from social interaction;
4. An expectation that Passive treatments rather than active participation will help.

Mnemonic: HAMPered
Pillar 2. Defining the problem

Physical Exam

- Observation
  - Posture
  - Gait
    - Joint deformities, muscle asymmetry, scars
- Palpation-tenderness- bone, ligaments, myofascial trigger points,
- Range of motion
- Neurological Motor and Sensory (segmental vs peripheral nerves) , reflexes, quantitative sensory exam (Central sensitization)
- Special tests
Tools to support assessment & management

- Pain diagrams
- SMART functional goal setting & motivational interviewing
- Outcome measures (BRIEF Pain Inventory)
- Scales: (Tampa Scale for Kinesiophobia, Pain catastrophizing scale, scales for depression etc)

**Pain diagrams**

- SMART functional goal setting & motivational interviewing
- Outcome measures (BRIEF Pain Inventory)
- Scales: (Tampa Scale for Kinesiophobia, Pain catastrophizing scale, scales for depression etc)

**Tampa Scale for Kinesiophobia - 11**

(Goubert et al., 2004; Woby, Roach, Urnston, & Watson, 2005)

1 = strongly disagree
2 = disagree
3 = agree
4 = strongly agree

<table>
<thead>
<tr>
<th>A</th>
<th>I’m afraid that I might injure myself if I exercise</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>I want to try to overcome it, my pain would increase</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>My body is telling me I have something dangerously wrong</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>People aren’t taking my medical condition seriously enough</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>My accident has put my body at risk for the rest of my life</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Pillar 3: Diagnose Pain and Treat Accordingly

- Nociceptive vs. Neuropathic
- Cancer vs. Non-Cancer
- Acute vs Subacute vs Acute on Chronic vs Chronic
- Mild, Moderate and Severe
Causes of Chronic Non Cancer Pain

- Low Back Pain
- Headache
- Trigeminal neuralgia
- Post-herpetic neuralgia
- Fibromyalgia
- Post traumatic or post-surgical pain
- Post-herpetic neuralgia
- Whiplash
- Diabetic Neuropathy

- Arthritis
- Vulvodynia
- Pudendal neuralgia
- Carpal tunnel syndrome
- Endometriosis
- Irritable bowel
- Inflammatory bowel
- Interstitial cystitis
- Alcohol neuropathy
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Supermarket approach
Choosing an Analgesic

Type of pain
- Acute/Chronic; acute on chronic; breakthrough
- Nociceptive/Neuropathic/Mixed/ Fibromyalgia
- Nociceptive: muscle, bone, inflammatory, tendinitis

Severity and pattern of pain
- Mild/Moderate/Severe
- Constant/Intermittent

Patient characteristics
- Liver/Kidney function, allergies, previous experience
- Sleep abnormality
- Mood disorder
- Co-morbidities
- Risk of opioid overdose (e.g. COPD) or addiction
Pharmacological Options for Chronic Pain

- Non-acidic antipyretic analgesics (e.g. acetaminophen)
- Acidic antipyretic anti-inflammatory analgesics, or non-steroidal anti-inflammatory drugs (NSAIDs)
- Selective Cox-2 inhibitor anti-inflammatory
- Muscle relaxants
- Antidepressant analgesics
- Anticonvulsant medications in neuropathic pain
- Opioids
- Cannabinoids (e.g. nabilone, medical marijuana)
- Local anesthetics (e.g. lidocaine patch)
- Topical analgesics (e.g. capsaicin cream)
- Steroids
WHO Analgesic Ladder

1. Nonopioid analgesics: aspirin and acetaminophen
   Adjuvants NSAIDs, antidepressants or anticonvulsants

2. Opioid for Mild to Moderate Pain
   + Nonopioid  + Adjuvant

3. Opioid for Moderate to Severe Pain
   + Nonopioid  + Adjuvant

Increasing Pain
Before writing the first script:

- **Pain diagnosis** Opioids have been shown effective for chronic spinal pain (neck and low back pain), arthritis pain (osteoarthritis and rheumatoid arthritis), and neuropathic pain.

- **Goals setting** (function improvement ± 30% pain relief)

- Assess **risk** of overdose

- Assess **risk** of misuse, abuse, addiction, diversion

- **Involve patient in decision making:** explain benefits, adverse effects, risks, provide written information, treatment agreement, urine screening
Consensus statement and guideline for pharmacological management of Neuropathic pain from the Canadian Pain Society

Figure 1) Stepwise pharmacological management of neuropathic pain. *5% gel or cream – useful for focal neuropathy such as postherpetic neuralgia (the lidocaine patch is not available in Canada); *Cannabinoids, methadone, lamotrigine, topiramate, valproic acid; †Do not add serotonin noradrenaline reuptake inhibitors (SNRIs) to tricyclic antidepressants (TCAs). CR Controlled-release

Moulin et al 2007

Moulin et al 2014
# Cannabinoids

## Content of THC vs CBD

<table>
<thead>
<tr>
<th>Method</th>
<th>CBD</th>
<th>THC</th>
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</thead>
<tbody>
<tr>
<td>Synthetics</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Edibles</td>
<td>+++</td>
<td>+</td>
</tr>
<tr>
<td>Inhaled</td>
<td>+</td>
<td>+++</td>
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</table>
Non-Pharmacological Management

- Exercise
- Hydrotherapy
- Modalities (heat, ice, TENS, NMES, laser U/S)
- Manual therapy (mobilizations, manipulations)
- Acupuncture
- Massage
- Cognitive behavioural therapy
- Acceptance and Commitment Therapy
- Mindfulness Meditation
- Self management programs
- Support groups
Options for Exercise

- Strength Training
- Aerobic Conditioning
- Stretching/flexibility
- Range of motion
- Neuromuscular exercise
- Aquatic Exercise/Hydrotherapy
- Mindful Movement
  - Yoga
  - Tai Chi
  - Qi Gong
- Structured Physical Activity
Exercise—what does the evidence say?

<table>
<thead>
<tr>
<th>Exercise type</th>
<th>Evidence</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>• Effective for low back pain</td>
<td>(Lawford et al 2016)</td>
</tr>
<tr>
<td></td>
<td>• Associated with significant improvements in chronic MSK pain</td>
<td>(O’Connor et al 2015)</td>
</tr>
<tr>
<td>Aerobic</td>
<td>• Effective for OA and RA for decreasing pain and improving function</td>
<td>(Baillet et al 2010)</td>
</tr>
<tr>
<td></td>
<td>• Improves function and pain in fibromyalgia</td>
<td>(Hauser et al 2010; Thomas &amp; Blotman 2010)</td>
</tr>
<tr>
<td></td>
<td>• Improves pain &amp; function in LBP</td>
<td>(Meng &amp; Yue 2015)</td>
</tr>
<tr>
<td>Resistance training</td>
<td>• Safe &amp; effective in OA and RA and AS</td>
<td>(Regnaux et al 2015; Baillet et al 2012)</td>
</tr>
<tr>
<td></td>
<td>• Beneficial effects in LBP</td>
<td>(Searle et al 2015)</td>
</tr>
<tr>
<td>Dynamic</td>
<td>• Combining strengthening, flexibility and aerobic are most likely to</td>
<td>(Uthman et al 2014)</td>
</tr>
<tr>
<td></td>
<td>improve pain and function in OA</td>
<td>(Hurkmans et al 2009)</td>
</tr>
<tr>
<td></td>
<td>• Aerobic capacity training combined with muscle strength training has</td>
<td></td>
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<tr>
<td></td>
<td>positive effects in RA</td>
<td></td>
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## Exercise-what does the evidence say?

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<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor control/core stability</td>
<td>• Core stability was more effective than general exercise in short term for LBP</td>
<td>(Coulombe et al 2017; Gome-Neto et al 2017; Saragiotto et al 2016)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Ageberg et al, 2015)</td>
</tr>
<tr>
<td></td>
<td>(Skou et al, 2017)</td>
<td></td>
</tr>
<tr>
<td>Neuromuscular</td>
<td>• As effective as traditionally used strength or aerobic exercise for people with degenerative knee disease</td>
<td>(Ageberg et al, 2015)</td>
</tr>
<tr>
<td></td>
<td>• GLA:D program has had significant impact on patient symptoms, function, intake of painkillers, sick leave for people with osteoarthritis, results maintained at one year</td>
<td>(Skou et al, 2017)</td>
</tr>
<tr>
<td>Hydrotherapy/Aquatic</td>
<td>• Evidence suggests it has a positive role in decreasing pain and improving health status in RA for the short term</td>
<td>(Al-Quaeissy et al 2013)</td>
</tr>
<tr>
<td></td>
<td>• Aquatic exercise offers short term benefit for hip and knee OA, long term effects have not been documented</td>
<td>(Bartels et al 2007; Waller et al 2014; Bartels et al, 2016)</td>
</tr>
<tr>
<td>Yoga, tai chi, Qi gong</td>
<td>• Yoga may improve pain and function in fibromyalgia and LBP, recommendations for improving pain &amp; disability are weak in some studies on OA, RA and fibromyalgia</td>
<td>(Langhorst et al, 2013; Saragiotto et al 2014; Kelley &amp; Kelley, 2015)</td>
</tr>
<tr>
<td></td>
<td>• Tai Chi -benefits found in OA and RA</td>
<td></td>
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</tbody>
</table>
We know it’s good for pain, but why else?

- Socialization
- Improved mood
- Sense of accomplishment
- Reduce secondary effects of pain disorder
- Myriad physical health benefits
If it’s so helpful, why do we avoid it?

- Lack of Motivation
- Deconditioning
- Requires Investment (time/effort)
- Delayed Effect
- Fear of Movement
- Altered physiological response to exercise
Overcoming obstacles - motivation

- Use meaningful/rewarding activity
- Assess readiness for change/employ motivational interviewing
- SMART goals
- Tempo-pace synchronized music
Overcoming obstacles - deconditioning

- Clearly identify exercise and other physical activity, and accommodate both
- Balance rest and activity simplification with activation
- Graded activity
Graded Activity

Activity Demands

- Low
- High

Therapeutic window
Activity not demanding enough, no challenge, no improvement

Activity too demanding, risk of injury, overexertion, increased pain

Activity Goal

Week 1  Week 2  Week 3  Week 4  Week 5  Week 6
Fear-Avoidance Model

(Vlaeyen and Linton, 2000)
Overcoming obstacles - fear of movement

- Education regarding hurt vs. harm; short term effects (acute discomfort) vs. long term effects (improved function, less pain)
- Graded exposure
- Cognitive approach, checking assumptions, journaling
Altered Exercise Induced Analgesic Response

- Exercise Induced Analgesia = Decreased pain sensitivity following exercise (moderate-intense aerobic or resisted exercise) in healthy individuals.
- Local and systemic.
- Remains intact with some pain-related conditions (osteo & rheumatoid arthritis).
- Reduced or absent in patients with fibromyalgia and other conditions involving central sensitization.
- The analgesic response may be preserved in non-affected portions of the body.

(Nijs et al., 2012)
Overcoming obstacles-physiological changes

- Simplify / modify activities to accommodate current tolerances
- Avoid or reduce eccentric or isometric strengthening exercise for patients with centralized pain
- Exercising non-painful muscles/areas can produce a benefit, with less acute pain
- Low intensity training may be more easily tolerated
- Graded activity - low baseline, slow graduation
- Multiple, long recovery breaks
- Rest before exhaustion
- Expect and accept symptom flares if minor, limited in duration, and are not increasing

(Nijs et al., 2012)
Exercise and chronic pain—desensitizing the nervous system

- Can exercise desensitize the CNS?
- Can we alter pain memories?
- Cognition targeted exercise therapy:
  - Systematic desensitization or graded repeated exposure to generate a new memory of safety in the brain replacing or bypassing the old and maladaptive movement related pain memories
  - Integrate pain neuroscience education with exercise interventions
  - Address patient perceptions about exercise
  - Address movement related pain memories applying exposure without danger principle (graded exposure/graded activity)

(Nijs et al, 2014)
Summary

- Project ECHO is an effective and potentially cost saving model that increases knowledge and competence in health care providers, increases patient access to health care in remote locations and improves patient care overall.

- Using supportive frameworks enables a comprehensive approach to the assessment and management of chronic non-cancer pain.

- There are various pharmacological and non-pharmacological options for the management of chronic non-cancer pain.

- There is consistent evidence that exercise can improve symptoms, decrease disability and improve function in a range of chronic pain conditions.

- It is important to understand and address the barriers and challenges in engaging in exercise and activity for patients with chronic pain.
Questions?

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Interested in registering for ECHO?

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