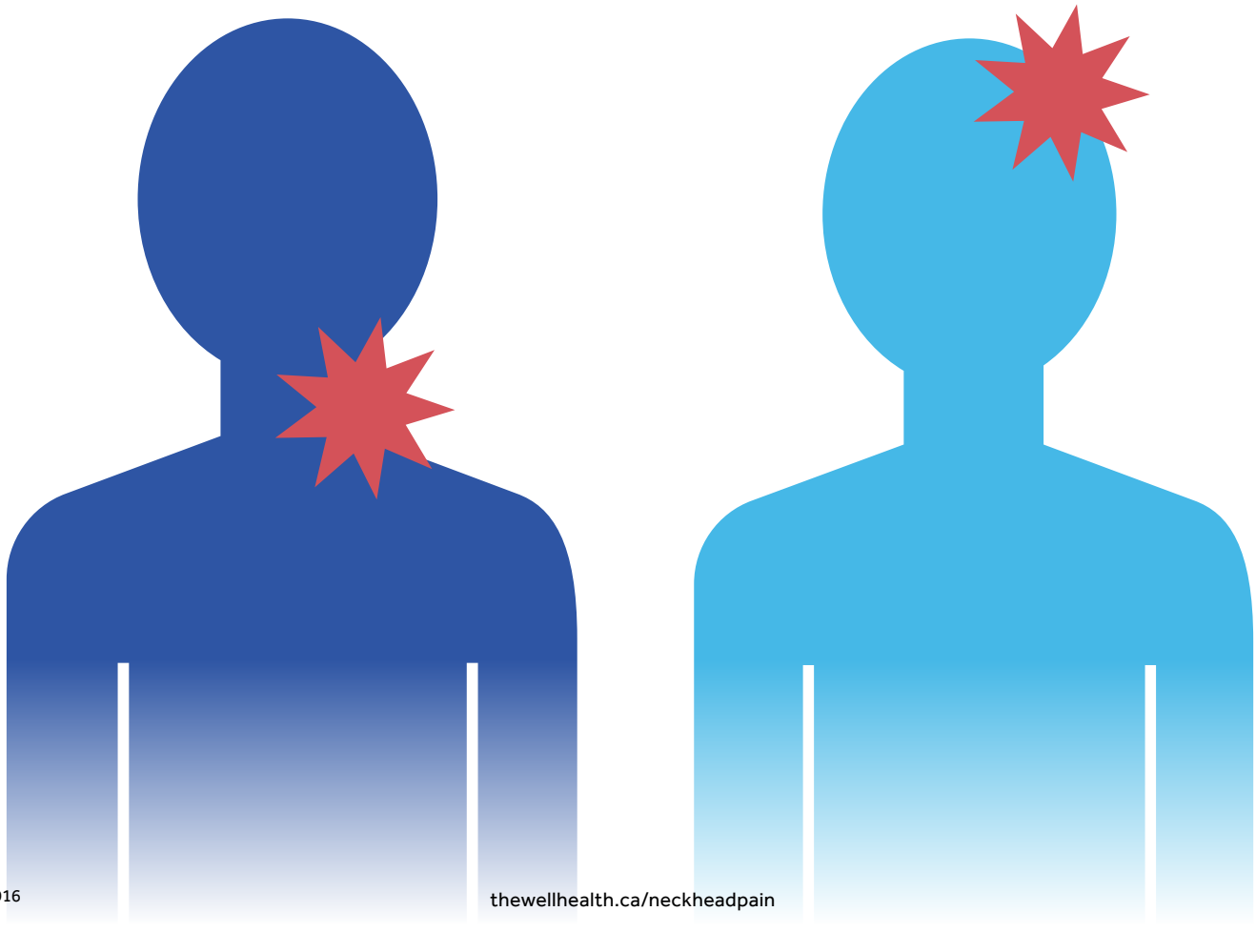
Centre for Effective Practice

CORE NECK TOOL

This tool guides primary care providers to recognize mechanical neck pain and manage it effectively with medication and activity while identifying appropriate triggers for investigations and referrals. Mechanical neck pain can present with neck, shoulder and/or arm pain. If your patient has an accompanying headache, it is recommended that you treat the headache symptoms first using the Headache Navigator (page 8).

HEADACHE NAVIGATOR

The Headache Navigator (page 8) assists primary care providers in managing primary headache disorders. It is based on the guideline and quick reference algorithm for the Primary Care Management of Headache in Adults produced by Towards Optimized Practice (TOP).



Centre for Effective Practice

Key Education Points
CORE Neck Tool

The Key Education Points have been included in this tool to assist primary care providers in the application of the tool in their practice and/or teaching.

History Section A

- When you are determining the patient's dominant area of pain, consider where they describe their most intense and bothersome symptoms.
  a. Neck dominant: Most intense pain is sub-occipital, trapezius, parascapular, shoulder paraspinal but may include intermittent arm pain.
  b. Arm dominant: Most intense pain is in the shoulder, deltoid, upper arm, forearm, hand and often includes the neck area.
- Yellow flags (page 4) are psychological risk factors that indicate that patients have an increased risk of developing chronicity.
- Key questions can be asked at any visit in order to initiate appropriate management.
- Ask screening questions for headache, trauma, concussion and system inflammatory disease. If further assessment is required, exit the tool and pursue detailed assessment.
- Anterior chest pain can occur in the presence of neck pain and may be related to cardiac etiology. Therefore, a screening question for cardiac disease has been inserted in the tool.
- Cervical myelopathy is an important surgical condition that should not be missed and therefore, it is important to specifically assess gait disturbance, incoordination and loss of neuromotor function.
- The modified Japanese Orthopedic Association (mJOA) score is a valuable tool for surgeons to better adjudicate the urgency of the referral.
- **Do not** make the diagnosis of bilateral carpal tunnel syndrome, until cervical cord pathology has been excluded.

Physical Examination Section B

- The purpose of the neck physical exam is to identify any neurological abnormalities, or radicular signs that may require investigations and referrals.
- It is important to document the range of motion with accompanying pain in the neck as a baseline for determining future treatment response. The shoulder range of motion should be assessed and if abnormal, a full shoulder exam is recommended to determine potential shoulder pathology.
- Radicular pain is determined by the reproduction of arm dominant pain on the Spurling's cervical compression test and the alleviation of arm dominant pain with the cervical distraction test. In addition, there may be neurological deficits on testing reflexes, myotomes and dermatomes.
- In order to not miss early detection of infection and/or tumor (Red Flags, page 4) examine the cervical chain lymph nodes. Follow-up if there is any clinical suspicion of wider spread disease.
- If cervical myelopathy is suspected, tandem gait and Hoffman's reflex should be assessed for more complete neurological evaluation.
- The physical examination is organized according to the patient's position, however the examination can be approached in any logical manner.

Management Matrix Section C

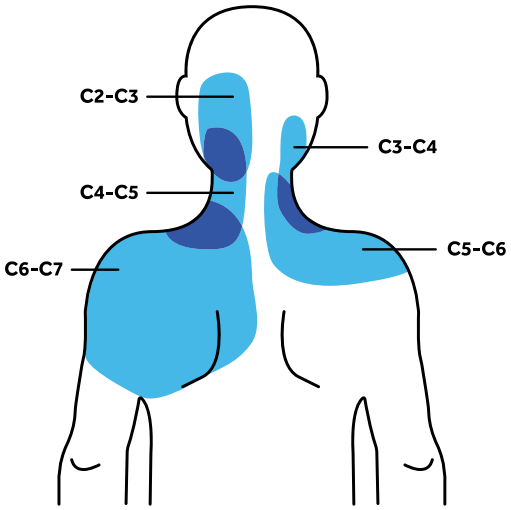
- Patient education and key messages are important components to patient management and can be woven into the assessment when opportunities are identified.
- The matrix is divided into neck and arm dominant pain since management differs with the pain dominance pattern. It is then divided into pharmacological and non-pharmacological interventions with the intention that all patients will benefit from receiving both approaches for best outcomes.
- An evidence based approach is integrated in the tool by clearly labelling "Recommended" and "Not Recommended" treatment interventions so that key messages and patient discussions can be easily undertaken.

Key Education Points
CORE Neck Tool

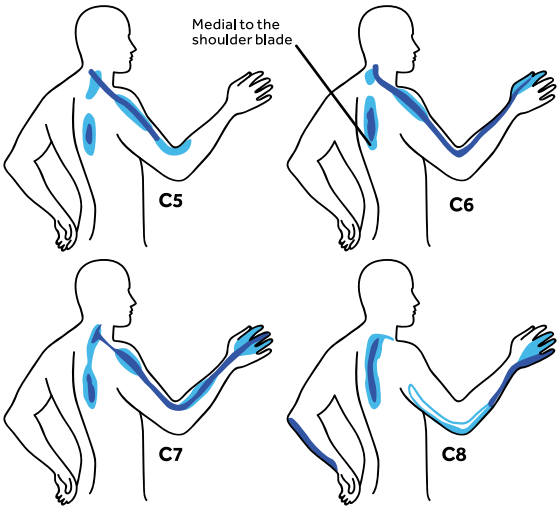
Referrals Section D

- When making a referral to a rehabilitation therapist for spine care (i.e. physiotherapist, chiropractor) , it is important to ensure that your patient is appropriate and ready to maximize treatment and that the therapy is evidence based active care.
- The emergency surgical criteria for cervical myelopathy are detailed in question 5 and the mJOA criteria[1], however, surgical consultation criteria for elective intervention have been listed in this section for appropriate referral.
- Pain management consultation is required when the patient's pain is unstable, persistent and chronic. Pain management can be delivered by a pain specialist, a multi-disciplinary team or a hospital based intervention clinic. Appropriate identification of treatment options is outlined to ensure early referral to appropriate services.

CORE Neck Tool Reference Images



Neck Dominant Pain Patterns



Arm Dominant Pain Patterns

Shoulder pain may be referred from neck pathology or be due to concurrent shoulder pathology. It is important to exam both the neck and shoulder to determine the cause of pain.

Patient Key Messages

- Key messages for patients are embedded throughout the CORE Neck Tool as indicated by the symbol 🔑.
  The patient key messages are meant to guide providers in discussions with patients but should not be read verbatim.

Legend

Indicates a link to a website

- NIFTI is a mnemonic for common Red Flags (page 4)
- Red Flags (page 4) indicate the potential presence of an underlying serious pathology
- Cervical myelopathy symptoms require urgent surgical evaluation

- Yellow Flags (page 4) indicate potential psychological risk factors for developing chronic pain
- If significant, cognitive behavioural therapy (CBT) or 1:1 psychoeducational counselling may be necessary for pain management

- Key patient messages

History

Section A

Patient Name: _____ Chart Number: _____

Date of Birth: _____ Visit Date: _____

This is a focused examination for clinical decision-making in primary care. This tool guides primary care providers to recognize common mechanical neck pain and screen for other conditions where management may include investigations, exercise referrals and specific medications. If your patient has an **accompanying headache**, it is recommended that you treat the headache symptoms first using the **Headache Navigator** (page 8).

1. Are you experiencing a headache related to your reason for today's visit?

- ○ **NO** Please proceed to Question 2
- ○ **YES** Please go to Headache Navigator (page 8)

2. Where is your pain the worst?[2]

○ **Neck**
Most intense over trapezius, sub-occipital, paraspinal, parascapular

○ **Arm**
Most intense distal of deltoid into upper arm, forearm, hand

○ **Shoulder**
Most intense over deltoid and anterior shoulder

3. Is your pain constant or intermittent?[2]

Dominant Location	Intermittent	Constant
Neck	Likely mechanical and should respond to exercise based therapy.	Rule out Red Flags
Arm	Referred pain from neck or shoulder, not nerve root compression or radiculopathy.	Rule out Red Flags Assess neurological status for radiculopathy
Shoulder	Requires a shoulder examination to determine diagnosis and management of potential concurrent shoulder pathology.	Rule out Red Flags for cervical pathology and/or non-msk pathology. Do full shoulder assessment if no neck pathology identified. Consider Non-MSK pathology.

Assessment of intermittent pain requires an alert, aware and not-medicated patient to confirm a complete absence of pain for a period of time (no matter how brief). It is critical to rule out Red Flags (page 4) for patients with constant pain. If it is challenging for patients to determine whether pain is constant or intermittent, rule out Red Flags (page 4).

4. Have you experienced unexplained chest pain, dizziness or shortness of breath during this episode of neck pain?

- ○ No
- ○ Yes → Consider cardiac etiology (including history, physical and appropriate investigation)

5. Have you noticed any of the following symptoms since the onset of your neck pain:

- ☐ Do you feel that your walking (gait) has changed and that you are experiencing clumsiness or imbalance?
- ☐ Do you have difficulty with fine motor tasks such as doing up a clasp or small buttons?
- ☐ Are you experiencing new onset tingling or numbness in your arms or hands?

If **YES** to any of the above:

- ○ Surgical evaluation is recommended to rule out degenerative cervical myelopathy and determine treatment and monitoring regime.
- ○ Modified Japanese Orthopedic Association (mJOA) Score for Cervical Myelopathy[1]

6. Did your neck pain begin with a trauma, accident or fall?

- ○ No
- ○ Yes → Consider C-Spine Imaging Rules[3]

  → Check for concussion related symptoms[4]

7. If you are ≤ 60 years old, are you experiencing prolonged morning stiffness in your neck for longer than 30 minutes?

- ○ No
- ○ Yes → Consider Systemic Inflammatory Arthritis Screen[5]

8. Is there anything you cannot do now that you could do before the onset of your pain?

- ○ No
- ○ Yes → Rule out Yellow Flags (page 4)

What has changed?

_____

_____

Why?

_____

_____

RED FLAGS[9,10,11,12]

Below are a list of serious pathologies to consider and rule out in assessing neck pain.

	Indication	Investigation
NEUROLOGICAL	Cervical cord compression, demylinating process. Progressive neurological deficits	MRI
INFECTION	Fever, meningism, history of immuno-suppression or intravenous drug use	X-ray and MRI
FRACTURE	Osteoporotic fracture, traumatic fall with risk of fracture	X-ray, may require CT
TUMOUR	Hx of cancer, unexplained weight loss, significant night pain, severe fatigue	X-ray and MRI
INFLAMMATORY	Rheumatoid arthritis, Polymyglia rheumatica, Giant cell arteritis	Rheumatology Consult

☐ If **NO** Red Flags, continue with CORE Neck Tool

Cardiovascular pathology (carotid arterial dissection, concurrent chest pain, myocardial ischemia) can present with neck and shoulder pain.

Imaging tests like x-rays, CT scans and MRIs are not helpful for recovery or management of acute or recurring neck pain unless there are signs of serious pathology.[9]

YELLOW FLAGS[6]

Psychological Risk Factors for Developing Chronicity

For patients with neck pain consider using the following questions (or the assessment tools listed below) to help explore your patients' risk of developing chronicity.

Questions To Ask	Listen/Look For
Do you think your pain will improve or become worse?	Belief that neck pain and activity are harmful or potentially severely disabling (e.g. catastrophizing).
Do you think you would benefit from activity, movement or exercise?	Fear and avoidance of activity or movement.
How are you emotionally coping with your neck pain?	Tendency to low or negative mood and withdrawal from social interaction.
What treatments or activities do you think will help you recover?	Unrealistic expectations of treatment. Expectation of passive treatment(s) rather than a belief that active participation will help.

☐ If **NO** Yellow Flags, continue with CORE Neck Tool

A patient with positive Yellow Flag(s) may benefit from education, support and targeted therapies to reduce risk of chronicity and could be screened for psychological conditions (e.g. anxiety, depression). Consider the following resources to support assessment and management of risk factors for chronicity; The Patient Health Questionnaire for Depression and Anxiety (PHQ-4)[7]; Pain Self Efficacy Questionnaire (PSEQ).[8]

If you are feeling symptoms of sadness or anxiety, they could be related to your condition and could impact your recovery. Schedule a follow-up appointment.

Physical Examination[13,14]

Section B

This is an examination which supports or refutes the differential diagnosis while assessing the severity of symptoms for prognosis and treatment planning. This examination should take 5 minutes of the clinical assessment. **The examination has been developed for primary care providers.**

	Patient Position		Abnormal	Normal	Comments
Standing	Observation	**Gait**			
		Neck Posture			
Sitting	Palpation	**Lymph Node Screen**			
	Movement	**Neck Screen** Cervical Active ROM - Flexion - Extension - Rotation - Side flexion			
		Shoulder Screen Active ROM			
	Neurological	**Deep Tendon Reflexes** - Biceps (C5, 6) - Triceps (C7) **Myotomes** C4 - Trapezius C5 - Deltoid C6 - Biceps C7 - Triceps C8 - 3rd fingers flexion **Dermatomes** C4 - Trapezius C5 - Over the shoulder C6 - Thumb and part of the forearm C7 - Middle finger C8 - Smallest fingers and part of the forearm			
	Radiculopathy	**Spurling's Compression Test**[15]			
Supine		**Cervical Distraction Test**[15] (Positive if arm pain relieved)			
		Upper Motor Neuron Screen Plantar Response Reflex Hoffman's Test			

Your examination today does not demonstrate that there are any Red Flags (page 4) present to indicate serious pathology, but if your symptoms persist for >6 weeks, schedule a follow-up appointment.

Management Matrix

Section C

	Non Pharmacological Options[10,16]		Pharmacological Options[9,10,16,18]	
	ACUTE (<3 months)	CHRONIC (>3months)	ACUTE (<3 months)	CHRONIC (>3months)

Neck Dominant Pain	**Recommended**
	
	Patient education and exercise should be included as part of active management and may be delivered solely within primary care office visit.
	
	• Reassurance of good prognosis and full recovery
	• Early return to non-painful activities of daily living and work
	• Independent stretch, strengthen and aerobic exercise
	• Refer to active therapy if education and exercise does not alleviate symptoms.
	
	Treatment may include:
	
	• Short-term cervical mobilization/ manipulation
	• Cervical stretching and strengthening exercise
	• Endurance and balance exercise
	• Short term mechanical cervical traction as adjunct treatment for pain relief
	
	Recommended number of treatment sessions = 1-6
	
	Not Recommended
	
	There is inconclusive evidence for the following:
	
	• Rest and immobilization
	• Cervical collars
	• Neck pillows
	• Electrical modalities
	• Relaxation massage
		Recommended
		
		Multimodal therapy and/or goal directed therapy including:
		
		• Patient education and counselling with reassurance for good recovery and encouragement for increased activity levels
		
		Active Rehabilitation therapy may include :
		
		• Short term cervical mobilization/ manipulation
		• Cervical stretching, strengthening and aerobic exercise
		• Therapeutic clinical massage
		• Low level laser therapy
		
		Recommended number of treatment sessions = 6-12 sessions
		
		Not Recommended
		
		There is inconclusive evidence for the following:
		
		• Rest and immobilization
		• Strengthening exercises in isolation from other treatment
		• Relaxation therapy or relaxation massage
		• Electro-acuptuncure
		• Cervical collar/neck Pillow
		• Mechanical or Manual Traction
			Recommended
			
			Start with:
			
			• Acetaminophen
			• NSAIDs
			
			Add or replace with
			
			• Muscle relaxants (e.g. cyclobenzaprine) for a short duration (few weeks)
			
			Not Recommended
			
			Routine use of opioids:
			
			• Consider judicious use in select patients if other options fail.
			• Glucocorticoids for mechanical neck pain.
			
			Inconclusive:
			• Topical NSAIDs
				Recommended
				
				Start with:
				
				• Acetaminophen
				• NSAIDs
				
				Add or replace with
				
				• Antidepressants
				  • TCAs (amitriptyline, nortriptyline)
				  • SNRI (duloxetine, venlafaxine)
				
				• Antiepileptics
				  • Topiramate
				  • Pregablin
				  • Gabapentin
				
				Not Recommended
				
				Routine use of opioids:
				
				• Consider judicious use in select patients if other options fail (please refer to the Canadian Guideline for the safe and effective use of opioids for chronic non cancer pain)[19]
				• SSRIs
				• Glucocorticoids for mechanical pain
				• Muscle relaxants
				
				Inconclusive:
				• Topical NSAIDs

Arm Dominant Pain	**Recommended** In addition to the above treatment regimes for neck dominant pain, patients with arm dominant pain may find additional relief with the following: • Relieving positions (arm abduction and supported elevation) • Frequent rest positions • Manual and Mechanical traction • Enhance Pharmacological pain management including use of opioids in conjunction with non-pharmacological treatment. **Not Recommended** There has been no proven effectiveness of the following: • Cervical collars • Electrical modalities • Relaxation massage	**Recommended** In addition to the above treatment regimes for neck dominant pain, patients with arm dominant pain may find additional relief with the following: • Trial of Acupuncture • Relieving positions (arm abduction and supported elevation • Frequent rest positions • Manual and Mechanical traction • Enhance Pharmacological pain management including use of opioids in conjunction with non-pharmacological treatment. **Not Recommended** There has been no proven effectiveness of the following: • Cervical Collars • Electrical Modalities • Relaxation Massage	**Recommended** Start with: • Acetaminophen • NSAIDs • Opioids for select patients[19] • Muscle relaxants (e.g cyclobenzaprine) – short duration 2 weeks *Add or replace with:* Antidepressants • TCA • SNRI Antiepileptics • Carbamazepine • Gabapentin • Pregablin For severe radiculopathy consider methylprednisolone or dexamethasone for 5-7 days. • Caution in patients with concurrent infections or in type 1 diabetics with a large swing in blood sugars.	**Recommended** Start with: • Acetaminophen • NSAIDs • Opioids for select patients[19] *Add or replace with :* Antidepressants • TCA • SNRI Antiepileptics • Carbamazepine • Gabapentin • Pregablin

Referrals

Section D

Rehabilitation Referral provided to Patient	
Patient readiness criteria for spine therapy: • Absence of Red Flags (page 4) • Pain is managed well and patient can tolerate treatment regime[16] • Pain has mechanical directional preference indicated by movement, position or activity • Patient is ready to be an active partner in goal setting and self-management	Rehabilitation therapist skills for evidence-based treatment include: • Ability to prescribe and progress exercise[20] • Ability to modify, assess and treat limitations pertaining to work, home or fitness pursuits • Ability to provide manipulative and soft tissue therapy including massage, mobilizations, myofascial release techniques, contract-relax muscle work[16,20] • Ability to provide education and facilitate patient self-management[20]

Recommendations in the above table have been developed in part from a consensus of expert opinion.

Surgical Referral[17]

- Failure to respond to evidence based compliant conservative care of at least 12 weeks
- Intolerable constant arm dominant pain
- Worsening nerve irritation tests (Spurling's compression test)
- Expanding motor, sensory or reflex deficits
- Suspected cervical myelopathy

Pain Management Referrals[9,10,18]

Consider a referral to the pain management options listed in the table below, if the following criteria are met:

- The recommended non-pharmacological and pharmacological options have been trialed with reasonable compliance for a minimum of 4 weeks.
- And one or more of the following:
  - The patient has high constant pain levels interfering with their function despite treatment
  - The patient requires escalating/high doses of opioids

Pain Management Referral Options

	Pain Specialist	Multidisciplinary pain clinic focused on improved functional outcomes through CBT, occupational & activity based approaches	Hospital based interventional pain clinic with a specialist skilled in cervical epidurals
Acute Neck Dominant Pain	✓	–	–
Chronic Neck Dominant Pain	✓	✓	–
Acute & Chronic Arm Dominant Pain	✓	–	✓

Imaging

Refer to red flags (page 4)

Laboratory Tests

Refer to red flags (page 4)

PATIENT MANAGEMENT & REFERRAL KEY MESSAGES

- You may need pain medication to help you return to your daily activities and initiate exercise more comfortably. It is activity; however, and not the medication that will help you recover more quickly.[20]
- Short acting opioid medication may be used for intense pain such as neck dominant constant symptoms related to nerve compression.[9,21]
- Neck pain often recurs. You can learn how to manage neck pain when it happens and use this information to recover without having to see your healthcare provider each time it happens.
- Movement and activity can help reduce pain and recover function.[20]

Notes:

Key Education Points
Headache Navigator

The Headache Navigator is designed to provide guidance to primary care providers in an office based setting to manage primary headache disorders (e.g. **migraine, cluster, tension type headache**).
It does **not** provide guidance for:

- Secondary headaches (e.g. **cervicogenic headaches, post-traumatic headaches, temporomandibular joint disorder**).
- Combined assessment and management of **headache and neck pain** due to the complexity of separating out the underlying pathologies. Use the Headache Navigator to start in assessing and managing the headache elements while also seeking early consultation with a headache specialist.

Neuro-Imaging[1,2,3,4]

- **Do not** refer patients for routine neuro-imaging (CT and MRI) for the assessment of primary headaches.
- **Do not** refer patients for neuro-imaging solely to reassure patients.
- **Do** reassure and educate patients about neuro-imaging. Consider using patient education tools if necessary.
    - Use patient education resources (general headache information)
- Refer to the imaging recommendations in the tool for a quick summary. For more detailed guidance refer to the full Guideline for the Primary Management of Headache in Adults.

Headache Management Highlights[2,3]

- Screen for Red Flags (page 4) in new onset headaches or changes to headaches.
- Acute management of cluster headaches should include the use of intranasal and subcutaneous triptans rather than NSAIDs and acetaminophen.
- Migraine prophylaxis can include topiramate, amitriptyline, propranolol, acupuncture and/or riboflavin.
- **Do not** recommend first line or routine use of opioid based medications for the management of acute migraine, tension type and cluster headaches.
    - Use patient education resources to reassure patients (treating frequent headaches with pain relievers).
- Consider medication overuse headache in patients who have chronic daily headaches (≥ 15 days a month for 3 months) that may be related to chronic migraine or chronic tension type headaches. See TOP guidelines for detailed guidance.
    - Headache diaries can help to monitor, prevent and diagnose (see supporting materials)
    - Use patient education resources to help reassure patients (medication overuse headache)

Provider Clinical Pearls[2,3,4]

- Migraine is the most common headache type and should be considered in patients with recurrent moderate or severe headaches and a normal neurological examination.
- Rule out secondary headache when making a diagnosis of a primary headache disorder.
- Neuroimaging, sinus x-rays, cervical spine x-rays, and EEG are not recommended for the routine assessment of the patient with headache. History and physical / neurological examination is usually sufficient to make a diagnosis of migraine or tension-type headache.
- Comprehensive migraine therapy includes management of lifestyle factors and triggers, acute and prophylactic medications, and migraine self-management strategies.
- ASA, acetaminophen, NSAIDs, and triptans are the primary medications for acute migraine treatment.
- **Do not:**
    - prescribe opioid analgesics or combination analgesics containing opioids or barbiturates as first line therapy for the treatment of migraine.
    - prescribe acute medications or recommend an over-the-counter analgesic for patients with frequent migraine attacks without monitoring frequency of acute medication use with headache diary.
    - offer opioids for the acute treatment of tension-type headache.
    - offer paracetamol, NSAIDs, opioids, ergots or oral triptans for the acute treatment of cluster headache.
- Medication overuse is considered present when patients with migraine or tension-type headache use combination analgesics, opioids, or triptans on 10 or more days per month or acetaminophen or NSAIDs on 15 or more days a month.

Guideline for Primary Care Management of Headache in Adults

Quick Reference

Red Flags (imaging recommendations)

Emergent - address immediately
- Thunderclap onset (CT)
- Fever and meningismus (CT)
- Papilloedema (+focal signs or reduced LOC) (MRI)
- Acute glaucoma (no current recommendation)

Urgent - address hours to days
- Temporal arteritis (no imaging recommended)
- Papilloedema (NO focal signs or reduced LOC) (MRI or CT)
- Relevant systemic illness (MRI or CT)
- Elderly: new headache with cognitive change (CT)

Possible indicators of secondary headache (imaging recommendations)

- Unexplained focal signs (MRI or CT)
- Atypical headaches (CT)
- Unusual headache precipitants (MRI or CT)
- Onset after age 50 (MRI or CT)
- Aggravation by neck movement; abnormal neck exam. Consider cervicogenic headache refer and/or investigate but also proceed down the algorithm (no current recommendations)
- Jaw symptoms; abnormal jaw exam. Consider temporomandibular disorder (no current recommendations)

Yes

- Refer and/or investigate
- If you are unsure about the need for headache imaging consider using the imaging suggestions in the table or refer to the guideline.

The recommendations in the table are drawn from the Guideline for the Primary Management of Headaches in Adults[2], the Joint Department of Medical Imaging Pathway[1] and the Canadian Association of Radiologist Diagnostic Imaging Referral Guidelines[5].

No

Headache with 2 or more of:

- Nausea
- Light sensitivity
- Interference with activities

Practice Points:
- Migraine historically under diagnosed
- Consider migraine diagnosis for recurring "sinus" headache

Migraine → Yes

No

Headache w/o nausea and 2 or more of:

- Bilateral headache
- Non-pulsating pain
- Mild to moderate pain
- Not worsened by activity

Tension type headache → Yes

No

Uncommon headache syndromes

All of:
- Frequent headache
- Severe
- Brief < 3 hours per attack
- Unilateral (always same side)
- Ipsilateral eye redness, tearing and/or restlessness during attacks

Yes → **Cluster headache/other trigeminal autonomic cephalagia**
- Management primarily pharmacological
- Acute medication (Table 3)
- Prophylactic medication (Table 3)
- Early specialist referral recommended
- If considering neuroimaging choose MRI.[1,5]

All of:
- Unilateral headache (always same side)
- Continuous
- Dramatically responsive to indomethacin

Yes → **Hemicrania continua**

Specialist referral
If considering neuroimaging choose MRI[1,5]

Headache continuous since onset

Yes → **New daily persistent headache**

Specialist referral
If considering neuroimaging choose MRI[1,5]

Medication overuse

Assess use of:
- Ergots, triptans, combination analgesics or codeine/other opioids > 10 days/month
  OR
- Acetaminophen or NSAIDs > 15 days/month

Manage
- Educate patient
- Consider prophylactic medication
- Provide an effective acute med for severe attacks with limitations on frequency of use
- Gradual withdrawal if opioid, or combination analgesic with opoid or barbiturate
- Abrupt (or gradual) withdrawal if acetaminophen, NSAIDs or triptan

Migraine

- Imaging is not recommended if neurological exam is normal.[1,5]
- Acute Medication (Table 1)
- Monitor for medication overuse
- Prophylactic medication (Table 1), if headache:
  >3 days/month and acute meds not effective
  OR >8 days/month (risk of overuse)
  OR disability despite acute meds

If the patient's headaches continue to interfere with function and activity after a trial of multiple treatment options consider the following:
- Referral to headache specialist
- Consider using the CORE Neck Tool if the patient has significant neck pain as well.

Behavioural Management

- **Headache diary**: record frequency, intensity, triggers and medication
- **Adjust lifestyle factors**: reduce caffeine, ensure regular exercise, avoid irregular and/or inadequate sleep or meals
- **Stress management**: relaxation, training, CBT, pacing activity, biofeedback

Tension-type headache

- Imaging is not recommended if neurological exam is normal.[1,5]
- Acute medication (Table 2)
- Monitor for medication overuse
- Prophylactic medication if disability despite acute meds (Table 2)

If the patient's headaches continue to interfere with function and activity after trial of multiple treatment options consider the following:
- Referral to headache specialist.
- Consider using the CORE Neck Tool if the patient has significant neck pain as well.

Adapted with permission from: Towards Optimized Practice. Guideline for primary care management of headache in adults. Edmonton, AB: Towards Optimized Practice. 2012 July. Available from: www.topalbertadoctors.org

Medications Recommended for Headache Management in Adults

Quick Reference

Table 1 Migraine

Acute Migraine Medication	
1st line	ibuprofen 400 mg, ASA 1 000 mg, naproxen sodium 500-550 mg, acetaminophen 1 000 mg
2nd line	Triptans: oral sumatriptan 100 mg, rizatriptan 10 mg, almotriptan 12.5 mg, naratriptan 2.5 mg • Subcutaneous sumatriptan 6 mg if vomiting early in the attack. Consider for attacks resistant to oral triptans. • Oral wafer: rizatriptan 10 mg, zolmitriptan 2.5 mg, if fluid ingestion worsens nausea • Nasal spray: zolmitriptan 5 mg, sumatriptan 20 mg, if nausea Antiemetics: domperidone 10 mg, metoclopramide 10 mg, for nausea
3rd line	500 - 550 mg naproxen sodium in combination with triptan
4th line	Fixed-dose combination analgesics (with codeine if necessary - not recommended for routine use)

Prophylactic Migraine Medication		Starting Dose	*Titration: Daily Dose Increase	Target Dose/ Therapeutic Range	Notes
1st line	propranolol	20 mg bid	40 mg/week	40-120 mg bid	Avoid in Asthma
	metoprolol	50 mg bid	50 mg/week	50-100 mg bid	
	nadolol	40 mg daily	20 mg/week	80-160 mg daily	
	amitriptyline	10 mg hs	10 mg/week	10-100 mg hs	Consider if depression, anxiety, insomnia or tension-type headache
	nortriptyline	10 mg hs	10 mg/week	10-100 mg hs	
2nd line	topiramate	25 mg daily	25 mg/week	50 mg bid	Consider 1st line if overweight
	candesartan	8 mg daily	8 mg/week	16 mg daily	Few side effects; limited experience in prophylaxis
	gabapentin	300 mg daily	300 mg/3-7 days	1200 - 1800 mg daily, divided tid	Few drug interactions
Other	divalproex	250 mg daily	250 mg/week	750-1500 mg daily, divided bid	Avoid in pregnancy or where pregnancy is possible
	pizotifen	0.5 mg daily	0.5 mg/week	1-2 mg bid	Monitor for somnolence and weight gain
	OnabotulinumtoxinA	155-195 units	No titration needed	155-195 units every 3 mos.	For chronic migraine only: headache on > 15 days/month
	flunarizine	5-10 mg hs		10 mg hs	Avoid in depression
	venlafaxine	37.5 mg daily	37.5 mg/week	150 mg daily	Consider in migraine with depression
Over the Counter	magnesium citrate	300 mg bid	No titration needed	300 mg bid	Efficacy may be limited; few side effects
	riboflavin	400 mg daily		400 mg daily	
	butterbur	75 mg bid		75 mg bid	
	co-enzyme Q10	100 mg tid		100 mg tid	

* Titration: Dosage may be increased every two weeks to avoid side effects

For most drugs, slowly increase to target dose
- Therapeutic trial requires several months
- Expected outcome is reduction, not elimination of attacks
- If target dose not tolerated, try lower dose
- If med is effective and tolerated, continue for at least 6 mos.
- If several preventive drugs fail, consider specialist referral

Refer to full guideline for migraine treatment in pregnancy.

Table 2 Tension Type Headache

Acute Medication
• ibuprofen 400 mg • ASA 1000 mg • naproxen sodium 500-550 mg • acetaminophen 1000 mg

Prophylactic Medication	
1st line	amitriptyline 10-100 mg daily *OR* nortriptyline 10-100 mg daily
2nd line	mirtazapine 30 mg daily *OR* venlafaxine 150 mg daily

Table 3 Cluster Headache Consider early specialist referral

Acute Medication
• subcutaneous sumatriptan 6 mg • intranasal zolmitriptan 5 mg *OR* • 100% oxygen at 12 litres/minute for 15 minutes through non-rebreathing mask

Prophylactic Medication	
1st line	verapamil 240-480 mg daily (higher doses may be required)
2nd line	lithium 900-1200 mg daily
Other	topiramate 100-200 mg daily *OR* melatonin up to 10 mg daily
*Note	If more than two attacks per day, consider transitional therapy while verapamil is built up (e.g. prednisone 60 mg for 5 days, then reduced by 10 mg every 2 days until discontinued)

Abbreviations
hs - at bedtime **bid** - twice a day **tid** - three times a day

These recommendations are systematically developed statements to assist practictioner and patient decisions about appropriate health care for specific clinical circumstances. They should be used as an adjunct to sound clinical decision making.

Adapted with permission from: Towards Optimized Practice. Guideline for primary care management of headache in adults. Edmonton, AB: Towards Optimized Practice. 2012 July. Available from: www.topalbertadoctors.org

Supporting Materials*

CORE Neck Tool

Opioid Risk Tool
This tool identifies patients who may be at risk for opioid dependency so that appropriate medication management can be planned.
URL: https://thewellhealth.ca/wp-content/uploads/2016/07/4._opioid_risk_tool_eng.jpg

The Keele STarT Back Screening Tool
This screening tool categorizes patients by risk of persistent symptoms (low, medium or high), which allows the clinician to tailor interventions appropriately.
URL: https://thewellhealth.ca/wp-content/uploads/2016/07/7._startback_tool_eng-1.jpg

Neck Pain Information and Exercise Sheet
The exercise sheet includes images to help identify correct and incorrect posture positions, and lying positions, as well as flexion/extension, rotation, side flexion, and retraction exercises.
URL: http://www.arthritisresearchuk.org/health-professionals-and-students/reports/hands-on/hands-on-spring-2011-exercise-sheet.aspx

Headache Navigator

Headache Diary Sheets
These can be completed by patients to help with headache diagnosis.
URL: http://www.ihe.ca/download/ambassador_headache_diary_short_form_06_nov_2013.pdf

Patient Education Resources

General headache information
A resource that provides answers to patients' commonly asked questions about headache.
URL: http://www.ihe.ca/download/ambassador_headache.pdf

Medication overuse headache
A resource that provides answers to patients' commonly asked questions about medication overuse headache.
URL:http://www.ihe.ca/download/ambassador_medication_overuse_headache.pdf

Acute migraine management
A resource that provides answers to patients' commonly asked questions about migraine management.
URL:http://www.ihe.ca/download/ambassador_migraine_headache.pdf

Migraine prophylaxis
A resource that provides answers to patients' commonly asked questions about migraine preventive medications.
URL:http://www.ihe.ca/download/ambassador_migraine_preventive_medications.pdf

Tension headache management
A resource that provides answers to patients' commonly asked questions about managing tension-type headaches.
URL:http://www.ihe.ca/download/ambassador_tension_type_headache.pdf

Treating frequent headaches with pain relievers
Provides tips to help manage frequent headaches and discourages patients from taking pain relievers too often.
URL: http://www.choosingwiselycanada.org/wp-content/uploads/2015/10/Headaches-EN.pdf

*These supporting materials are hosted by external organizations, and as such the accuracy and accessibility of their links are not guaranteed. CEP will make every effort to keep these links up to date.

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