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CDU Curriculum: Back Pain

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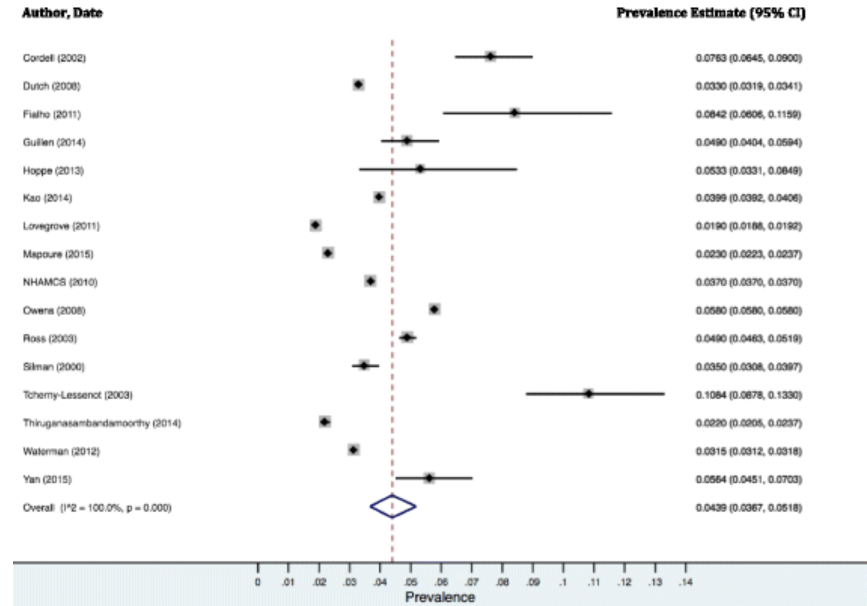
Epidemiology

- Over half of people will experience low back pain at some point in their lifetime (prevalence >50%)
- Age has bimodal distribution with peaks coming in young adults (25-29 y/o) and the elderly (>80 y/o)
- 55% female
- 93% had onset of symptoms <4 weeks prior to ED visit

Epidemiology (continued)

- ~4.4% of all ED visits are for low back pain, making it a top 5 presenting complaint
  - Similar to fever (4%) and shortness of breath (4.4%)
- ~25% will present again within 1 year
- Low back pain accounts for ~$90 billion/year in healthcare costs in the US alone



Brief ED management, info about diagnostic testing

- ED management of low back pain:
  - **History**- often the goal is to determine acute vs chronic and to obtain information on any new injuries, trauma, or focal neurological deficits leading to the visit
  - **Exam**- focus on assessment of midline vs paraspinal tenderness along with a complete neurological exam including strength, sensation, rectal tone, etc.
  - During H&P, it is vital to rule out other emergent causes of back pain, including aortic dissection and AAA

Brief ED management, info about diagnostic testing (continued)

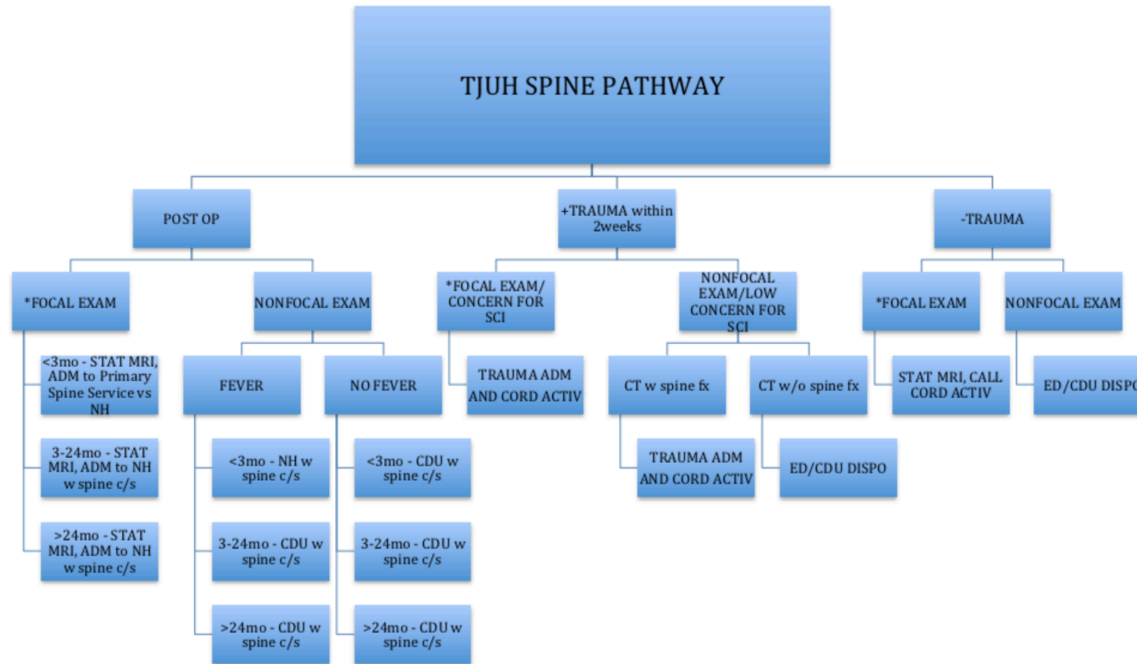
- ED management of low back pain:
  - **Diagnostic testing**- case specific but frequently the clinical decision is imaging vs no imaging (exception: LP if meningitis suspected)
  - **Treatment**- pain control to return to baseline pain level, may require neurosurgical evaluation and surgical treatment if cord damage is suspected/diagnosed

CDU Pathway

- Inclusion criteria
  - Probability of discharge within 24 hrs is >80%
  - Inability to control pain in ED with repeated analgesia
  - Normal neuro function and temperature
  - No risk of metastatic disease or vertebral/epidural abscess
  - Normal ED imaging
  - Low trauma mechanism with no concern for spinal cord injury

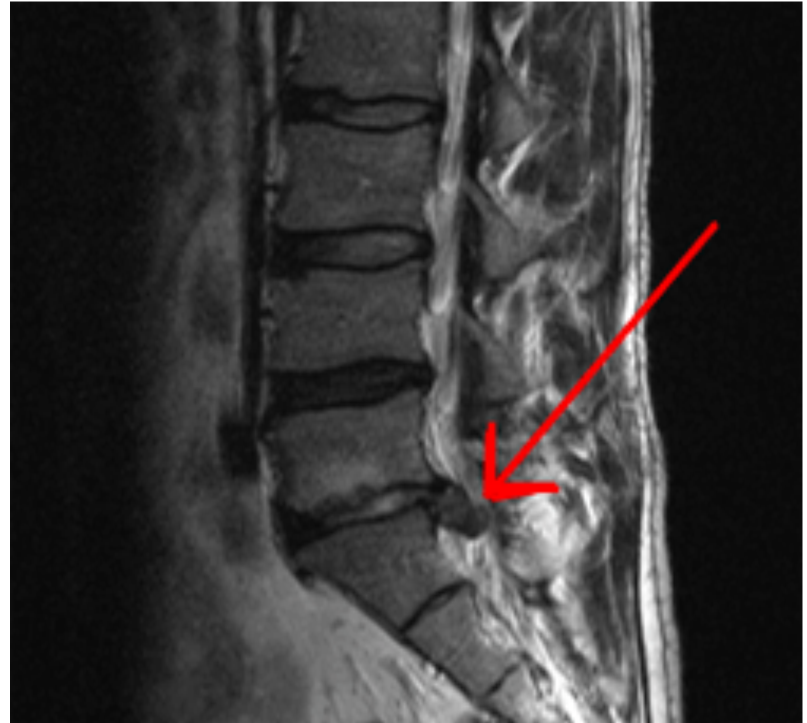
- Exclusion Criteria
  - Probability of discharge within 24 hrs is <80%
  - Meets inpatient admission criteria
  - Frequent visits to ED for back pain
  - Age >70 y/o
  - Acute motor deficit
  - Fever
  - Abnormal ED imaging
  - High suspicion of cord compression or spinal cord injury

EM Spine NH Spine Pathway



Typical CDU Plan

- Pain control
- Imaging
  - MRI is most common and most sensitive imaging modality in most cases
- Consult if needed
  - Neurosurgery
  - Orthopedic surgery
- Ambulation
  - PT/OT
  - Patient should be flipped to inpatient if ambulatory dysfunction lasts longer than 48 hours

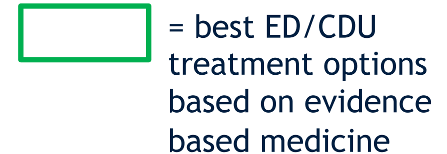


Treatment options

Intervention	Level of Evidence*	Grade	Net Benefit†
Acetaminophen	Fair	B (acute)	Moderate
NSAIDs	Good	B (acute)	Moderate
Muscle relaxants	Good	B (acute)	Moderate
Tramadol	Fair	B	Moderate
Opioids	Fair	B (acute)	Moderate
Neuropathic pain medications	Fair	C (chronic)	Small
Antidepressants	Good	B/C (chronic)	Small to moderate
Systemic steroids	Fair	D	None
Bed rest	Good	D	None
Heat	Fair	C	Small
Exercise	Good	B	Moderate
Acupuncture	Fair	B (chronic)	Moderate
Massage	Fair	B (chronic)	Moderate
Individualized education	Fair	B (chronic)	Moderate

Intervention	Level of Evidence*	Grade	Net Benefit†
Interdisciplinary physical therapy	Good	B (chronic)	Moderate
Psychological therapy	Good	B (chronic)	Moderate
Traction	Fair	C	None
TENS	Poor	Insufficient evidence	Unknown
Spinal manipulation	Good	B (chronic)	Moderate
Prolotherapy	Good to fair	C	None
Trigger point injections	Good to fair	C	None
Facet joint injections	Good to fair	C	None
Epidural steroid injections	Fair	B	Moderate
Spinal cord stimulation	Fair	B	Moderate

= common ED/CDU treatment options


= best ED/CDU treatment options based on evidence based medicine

Special patient populations:

- **<u>Elderly</u>**- not appropriate for the CDU as one of the exclusion criteria is age > 70 y/o
- **<u>High dose opioid users</u>**- often times pain will be difficult to control in these patients due to their high tolerance, the ED provider should consider admitting to medicine for pain control >48 hours with possible APMS consult
- **<u>Homeless</u>**- special focus on not only pain control, but also addressing barriers to follow up and optimizing pain control plan after discharge to prevent readmission

References

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Takeaways

- Back pain is a very common presenting symptom to the ED, but can have a wide variety of causes, only a few of which are appropriate for the CDU
- The CDU is only appropriate for patients who have no concern for spinal cord injury and whose pain has a high chance of being controlled within a 24 hour period
- CDU plan is focused on short term pain control and ambulation
- Pain control should be focused on NSAIDs and muscle relaxants, opioids can be useful in controlling pain but should not be the main treatment modality

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