When is Low Back Pain Something Else?

Red Flags For Serious Diseases

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Objectives

- Briefly review common causes of low back pain
- Define “red flags” in the assessment of low back pain
- Discuss risk factors for serious conditions associated with red flags
- General guidelines for seeking medical care in the setting of low back pain

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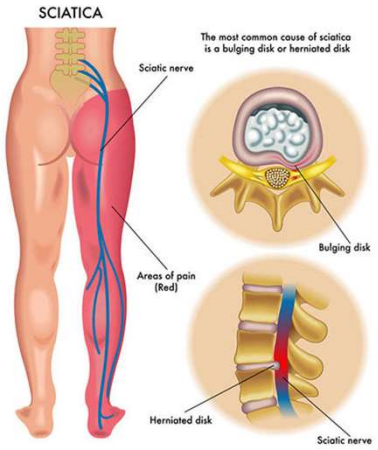
Low Back Pain (LBP)

- 5th most common reason for visiting a physician in the U.S.
- Incidence of low back pain: 13% and 31%
- Incidence of radicular symptoms in patients with LBP: 12%-40%

- In the vast majority, the cause is **usually self-limited, and symptoms improve within 4-6 weeks**



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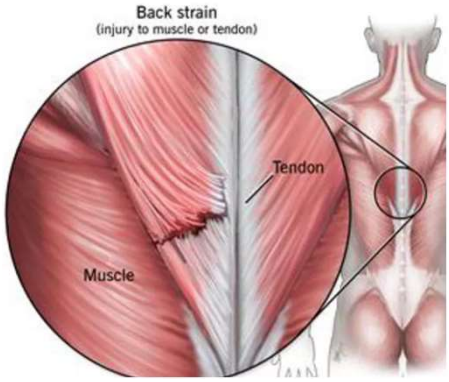
Common Causes of Low Back Pain

- **Muscle strain**
- **Ligament sprain**
- Arthritis
- Disc herniation
- Spinal stenosis
- Nonspecific LBP



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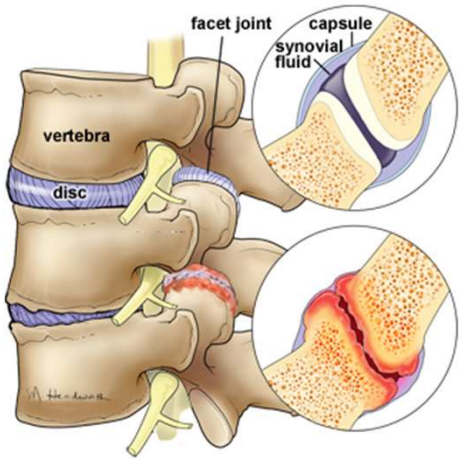

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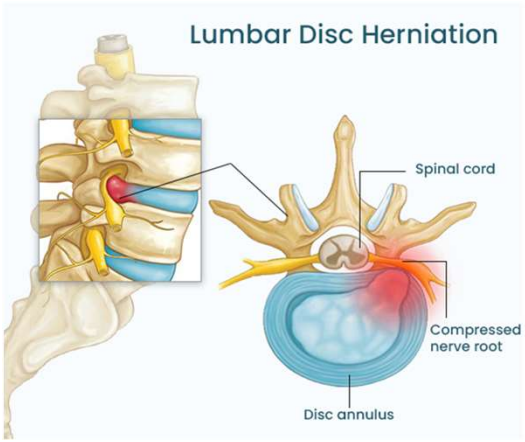

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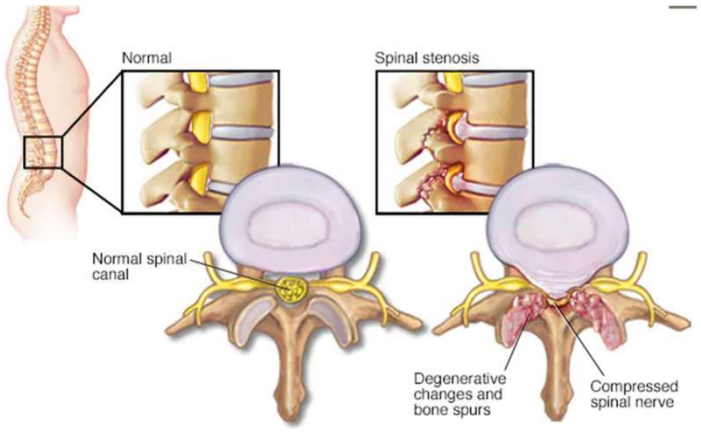

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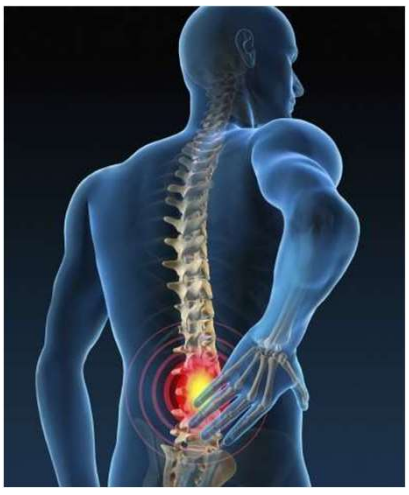

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Red Flags in Low Back Pain

- Signs or symptoms that pose a threat to neurologic function or indicate a serious spinal or systemic pathology
  - ex: unintended weight loss, fevers, progressive weakness
  - ex: spinal fractures, cancer metastases, spinal infection, cauda equina syndrome
- Red flags are noted in less than 1% of patients presenting with LBP to their primary care doctor
- **Comprehensive history intake, physical exam, and assessment are key in identifying serious pathology**

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History and Physical

- History
  - Where is the LBP ? When did it start ? How long has it been going on for ? How severe is the pain, and is it worsening ?
  - Neurologic symptoms - weakness, numbness, radicular pain, bowel or bladder incontinence
  - Review of prior back pain, and if symptoms are similar
  - Constitutional symptoms
    - fevers, unintended weight loss, other associated symptoms

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History and Physical

- Additional history intake items
  - Personal history of cancer
  - Intravenous (IV) drug use
  - Recent bacterial infections
  - Use of chronic corticosteroids
  - Recent epidural or spinal procedures
- Physical Exam
  - Inspection and palpation of lumbar spine
  - Assess range of motion
  - Neurologic exam (reflexes, strength, sensation, and gait)

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Agency for Health Care Policy and Research (AHCPR) Red Flags for Low Back Pain

- Age younger than 20
- Age older than 50
- Duration of symptoms
- History of trauma
- Constitutional symptoms
- Systemic illness
- Unrelenting pain
- Cauda Equina Syndrome

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LBP: Age Younger than 20

- **Most common cause of LBP in younger patients is due to muscle strain or sprain, and self-resolves**
- Congenital and developmental conditions
  - scoliosis
  - spondylolysis
  - spondylolisthesis
  - Lumbosacral transitional vertebrae (ie Bertolotti syndrome)
- Other considerations
  - inflammatory/rheumatologic disease
  - disc herniation (trauma, activity)
  - rare: cancer, infection

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LBP: Age Younger than 20

- Scoliosis
  - Idiopathic (most common)
  - Congenital
  - Neuromuscular
    - (ie cerebral palsy, spina bifida)

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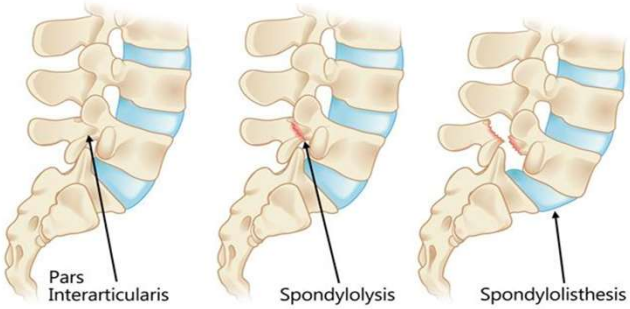
LBP: Age Younger than 20

- **Spondylolysis**- from recurrent microtrauma during excessive lumbar flexion and extension.
  - (eg, gymnastics, dance, diving, weightlifting, figure skating, volleyball, soccer, football)



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LBP: Age Greater than 50

- Older patients have a greater likelihood of:
  - Cancer
  - Pathologic fractures
  - Infections
  - Serious non-spinal conditions

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Cancer - Related Red Flags

- Cancer types most associated with bony metastases/spread include:
  - Breast
  - Prostate
  - Lung
  - Thyroid
  - Kidney

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Cancer - Related Red Flags

- Patients with a history of cancer, with the following symptoms, should visit their clinician for assessment and workup:
  - New/worsening low back pain
  - New/worsening neurological symptoms
    - (ex: weakness, numbness, bowel or bladder incontinence, saddle anesthesia)
  - Unintended weight loss (>10 lbs)
  - Fevers/chills
  - Night sweats
  - Unrelenting pain

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Cancer - Related Red Flags

- High clinical suspicion for a cancer-related cause of low back pain will prompt additional workup and imaging
  - Labwork
  - Xray
  - MRI or CT
- May affect spinal canal, spinal cord, and/or vertebral body (fracture)

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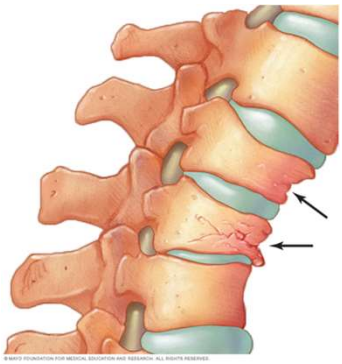
Pathologic Fractures - Red Flags

- Fracture due to a loss of strength in a bone from a disease process
  - **possibly from: osteoporosis, infection, cancer or metastases**



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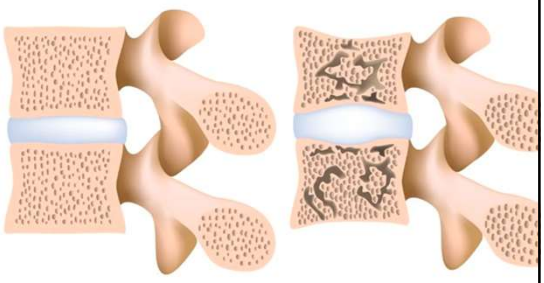
Pathologic Fractures - Red Flags

- Osteoporosis
  - Osteoporosis is a common problem that causes bones to become abnormally thin, weakened, and easily broken

  - Risk factors
    - Age >50 YO
    - Postmenopausal women
    - History of fractures
    - Longterm steroid use (ie: prednisone)
    - Very low body weight
    - Smoking and excess alcohol use



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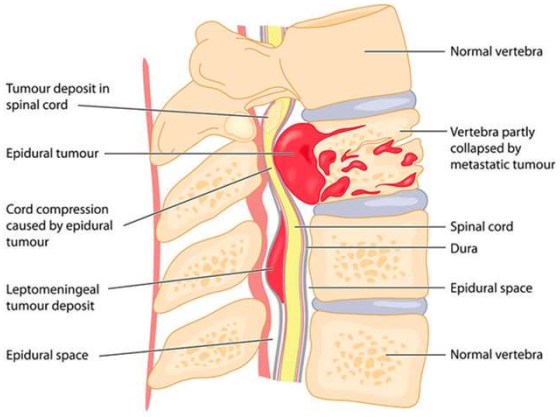
Pathologic Fractures - Red Flags

- **Cancer - related pathologic fractures (ie: bone tumors)**



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Serious Spinal Infections - Red Flags

- Risk factors
  - Immunocompromised patients
    - Diabetes mellitus, cancer, and HIV or AIDS
  - Immunosuppression therapy
  - Current hemodialysis
  - Current or recent intravenous drug use
  - Current or recent invasive epidural/spinal procedure
  - Current or recent systemic bacterial infection
  - Chronic corticosteroid use

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Serious Spinal Infections - Red Flags

- Presentation
  - fevers, chills, low back pain, +/- neurologic symptoms or changes

- Workup
  - History and Physical Exam
  - MRI of lumbar spine
  - Labwork

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Serious Spinal Infections - Red Flags

- Potential Pathology ?
  - Epidural / spinal abscess

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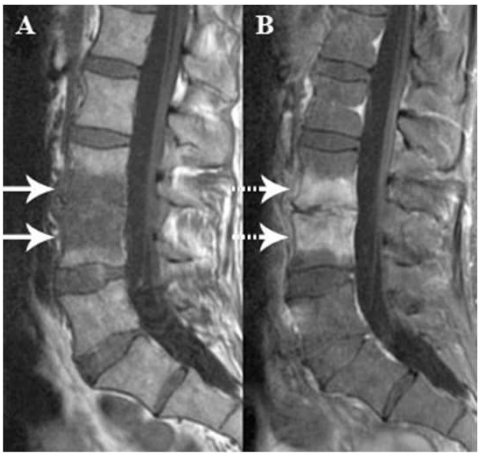
Serious Spinal Infections - Red Flags

- Potential Pathology ?
  - Osteomyelitis
  - Discitis



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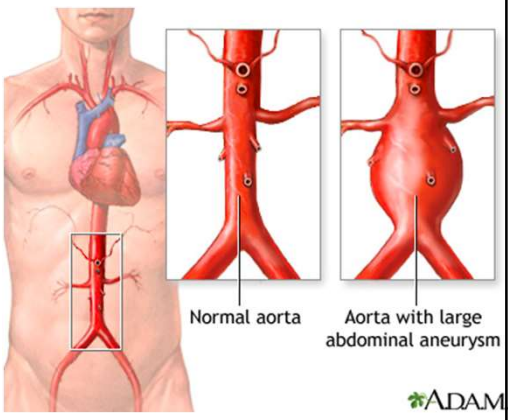
Non-Spinal Causes - Red Flags

- ex: Abdominal Aortic Aneurysm
  - If symptomatic, can be associated with pain located in the abdomen, back, or flank
  - Classic triad
    - severe acute pain
    - pulsating abdominal mass
    - low blood pressure
  - Requires urgent evaluation, imaging, and likely surgical correction
    - high morbidity and mortality if ruptures



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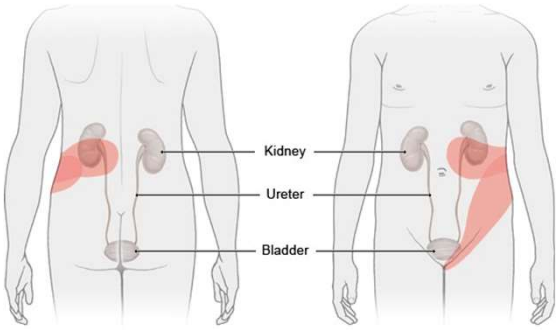
Non-Spinal Causes - Red Flags

- Pancreatitis
- Nephrolithiasis (kidney stones)
- Pyelonephritis



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LBP- Duration of Symptoms

- Symptoms lasting greater than 3 months may be of concern as majority of patients with LBP improve within 6 weeks
- Patient should seek medical assessment and workup in above situation, especially if other red flags are present

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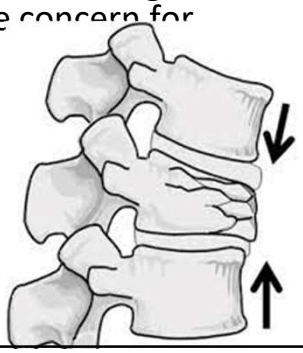
LBP - History of Trauma

- Major trauma and sudden/acute LBP
  - ie: fall from height, motor vehicle crash
- Minor trauma in elderly patients, i.e. falling from a standing or seated position, with new-onset LBP, should raise concern for fracture.
  - ex: vertebral compression fracture
- Should prompt an urgent evaluation, which may include X-rays, and/or advanced imaging



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LBP - Presence of Constitutional Symptoms

- Fevers
- Chills
- Night Sweats
- Unexpected Weight Loss

- If above present with LBP, should seek consultation with a physician to rule out serious pathology such as a spinal infection or cancer-related cause

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LBP - Systemic Illness

- Cancer history
  - especially breast, prostate, lung, thyroid, and kidney cancer hx
- Recent bacterial infection
- Intravenous (IV) drug abuse history
- Immunosuppression
- Organ transplant history
- Steroid use

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LBP - Unrelenting Pain

- Not improved with changes in position
- Not improved with rest and pain medication / analgesics
- May worsen at night
- Not responding to conservative therapy

- If above present with LBP, should seek consultation with a physician to rule out serious pathology such as a spinal infection or cancer-related cause

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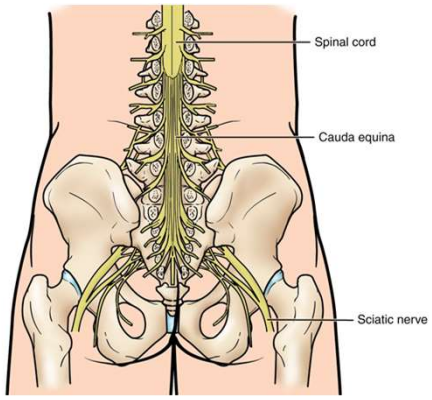
LBP - Cauda Equina Syndrome

- Sudden compression of the spinal cord or the nerve roots of the cauda equina
  - **most common cause: large disc herniation**

- Rare causes include:
  - spinal metastases
  - hematoma
  - infection (ie epidural abscess)
  - trauma
  - abdominal aortic dissection



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LBP - Cauda Equina Syndrome

- Bilateral radicular pain and weakness in legs
- Gait disturbance
- Urinary retention causing pain, or urinary incontinence
- Saddle anesthesia - diminished sensation in the buttocks and perineum / groin area

- **Requires emergent imaging and possibly urgent surgical decompression**

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Diagnostic Testing for LBP

- X-ray
- MRI
- CT
- Bone scintigraphy (bone scan)
- Lab work to assess for infection or inflammation

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TABLE 1

Red Flags for Serious Causes of Low Back Pain

Condition	Red flags
Cauda equina	Progressive weakness Saddle anesthesia Urinary retention
Fracture	Age older than 50 years Osteoporosis Steroid use Trauma
Infection	Immunocompromise Intravenous drug use Night pain Steroid use Temperature above 100.4°F (38°C)
Malignancy	Age older than 50 years History of malignancy Progressive pain or night pain Unintended weight loss

Information from reference 7.

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General Recommendations for Patients:

Patients should seek consultation with their physician if they have:

- Pain that does not go away, even at night or when lying down.
- Weakness in one or both legs or problems with bladder or bowel function
- Back pain accompanied by unexplained fever or weight loss.
- Back pain with a history of cancer, a weakened immune system, osteoporosis, or the use of corticosteroids (eg, prednisone) for a prolonged period of time.
- Back pain that is a result of falling or an accident, especially if older than 50.
- Pain spreading into the lower leg, particularly if accompanied by weakness of the leg.
- Back pain that does not get better within four to six weeks.

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Summary

- New-onset low back pain is typically self limited and resolves within 4-6 weeks
- In the presence of red flags in a patient's history, however, more urgent evaluation (history + physical, Xrays, MRI, labs) may be necessary to rule out a serious pathology
- If there are persistent or worsening symptoms during or after 6 weeks of conservative management, further assessment and workup with advanced imaging may be needed

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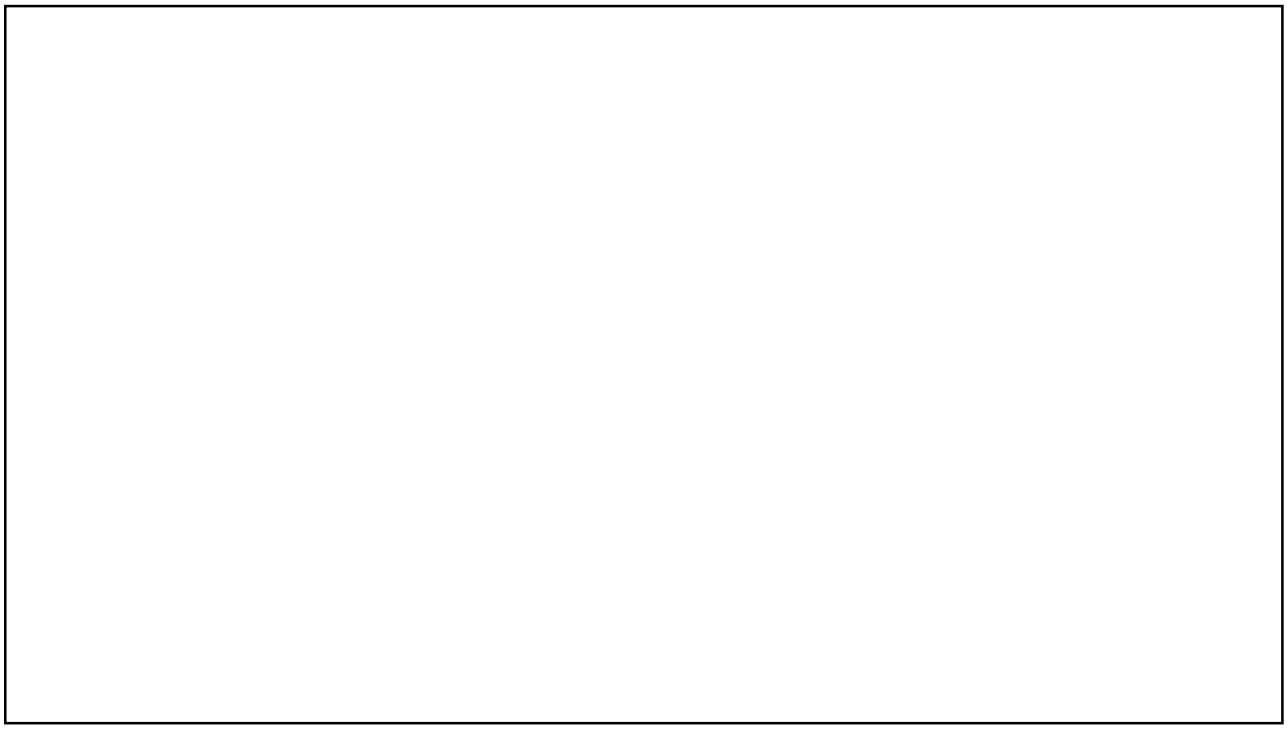

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