



Spine Pain in VA: Finding the Complete/ Right Cohort

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Outline

- Background
- Methods
- Results
- Discussion

Background

- Musculoskeletal Spine Pain in VA, Description and Guideline Adherence (IIR 09-062)
 - Observational study: Administrative data
 - Spine vs. neck vs. back
 - Acute, mechanical or non-specific spine pain

Background

- Back Pain Patient Outcomes Assessment Team (BOAT) (PI – Deyo) 1989 – 1994
 - “the back pain PORT, supported by AHCPR, analyzes practice variations and examines the relative effectiveness of alternative ways of diagnosing and treating back pain”
 - 70 publications
 - Evaluate diagnostic tests, surgery and various interventions
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Background

- Mechanical or non-specific low back or neck pain
 - ICD and CPT codes to identify patients in admin data
 - Incidence, prevalence - proxy for morbidity
 - Inclusion and exclusion algorithms
 - Surgical and non-surgical inpatient stays
 - Variation in surgical rates

Background

■ Key publications

- Volinn E, Mayer J, Diehr P, Van Koevering D, Connell FA, Loeser JD. Small area analysis of surgery for **low-back pain**. *Spine (Phila Pa 1976)*. May 1992;17(5):575-581.
 - Cherkin DC, Deyo RA, Volinn E, Loeser JD. Use of the International Classification of Diseases (ICD-9-CM) to identify hospitalizations for mechanical **low back problems** in administrative databases. *Spine*. 1992;17(7):817-825.
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Background

- Einstadter D, Kent DL, Fihn SD, Deyo RA. Variation in the rate of **cervical spine** surgery in Washington State. *Med Care*. Aug 1993;31(8):711-718.

Background

- AHRQ Healthcare Cost and Utilization Project (HCUP) – Clinical Classification Software (CCS) 1988
 - Homogenous clusters of interest to public policy researchers
 - Diagnostic and procedural categories
 - Technical specialists
 - Continuing review for accuracy and clinical significance
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Objectives

- Primary assumptions:
 - Changes in medical practice
 - Change in research capacity
 - Changes in research focus
- Review algorithms used to identify patients with spine pain in administrative data
- Revise algorithm if warranted

Objective

- Establish a standard methodology to identify patients with spine pain in administrative data

Methods

- Review ICD and coding methodology
- Identify literature that reports using ICD or CPT codes to identify patients with spine pain and spine surgery in administrative data
- Consolidate definitions – if possible
- Synthesize and test code lists for completeness

Results

- Coding methodology
 - CPT – Procedures and surgeries – five digit
 - ICD – Diagnoses and procedures
 - Three digit
 - Four digit
 - Five digit

Coding methodology

- 721- Spondylosis and allied disorders
 - 721.4 Thoracic or lumbar spondylosis with myelopathy
 - 721.41 Thoracic spondylosis with myelopathy
 - 721.42 Lumbar spondylosis with myelopathy

Literature Review

- Pubmed
- BOAT report
- Web of knowledge
- HCUP CCS categories

Lit review - PubMed

- In any field: *Back and ICD and prevalence; Neck and ICD and prevalence; Back and ICD and surgery; Neck and ICD and surgery; Back and CPT and prevalence; Neck and CPT and prevalence; Back and CPT and surgery; and Neck and CPT and surgery.*
- In the Title: *Back pain and prevalence; Neck pain and prevalence; Back pain and surgery; and Neck pain and surgery.*

Lit Review

BOAT – Web of Knowledge

- <http://www.ahrq.gov/clinic/medtep/backpain.htm>
- Web of Knowledge (Thomson Reuters Institute for Scientific Information sm)

Results

- 40 papers
- Excluded those that:
 - Did not include a specific list of inclusion or exclusion codes
 - Did not use administrative data
- Six papers in final synthesis

Final Review

■ Six papers and two HCUP CCS categories

- **Volinn E, Mayer J, Diehr P, Van Koevering D, Connell FA, Loeser JD.** Small area analysis of surgery for **low-back pain**. *Spine (Phila Pa 1976)*. May 1992;17(5):575-581.
- **Cherkin DC, Deyo RA, Volinn E, Loeser JD.** Use of the International Classification of Diseases (ICD-9-CM) to identify hospitalizations for **mechanical low back** problems in administrative databases. *Spine*. 1992;17(7):817-825.
- **Einstadter D, Kent DL, Fihn SD, Deyo RA.** Variation in the rate of **cervical spine** surgery in Washington State. *Med Care*. Aug 1993;31(8):711-718.
- **Taylor VM, Anderson GM, McNeney B, et al.** Hospitalizations for **back and neck** problems: a comparison between the Province of Ontario and Washington State. *Health Serv Res*. Oct 1998;33(4 Pt 1):929-945.
- **Angevine PD, Arons RR, McCormick PC.** National and regional rates and variation of **cervical discectomy** with and without anterior fusion, 1990-1999. *Spine (Phila Pa 1976)*. May 1 2003;28(9):931-939; discussion 940.
- **Martin BI, Deyo RA, Mirza SK, et al.** Expenditures and health status among adults with **back and neck problems**. *JAMA*. Feb 13 2008;299(6):656-664.

Coding algorithms...Table A

HCUP – CCS

- Back 205 Spondylosis, intervertebral disc disorders; other back problems
- 7201 7202 72081 72089 7209 7210 7211 7212 7213 72141
72142 7215 7216 7217 7218 72190 72191 7220 72210 72211
- 7222 72230 72231 72232 72239 7224 72251 72252 7226
72270 72271 72272 72273 72280 72281 72282 72283 72290
72291 72292
- 72293 7230 7231 7232 7233 7234 7235 7236 7237 7238 7239
72400 72401 72402 72409 7241 7242 7243 7244 7245
- 7246 72470 72471 72479 7248 7249

HCUP-CCS

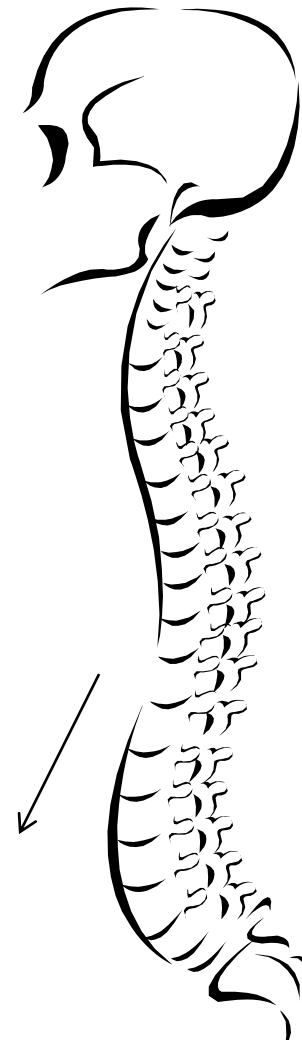
■ Sprains and Strains – 232

- 8400 8401 8402 8403 8404 8405 8406 8407 8408 8409
8410 8411 8412 8413 8418 8419 84200 84201 84202
84209
 - 84210 84211 84212 84213 84219 8430 8431 8438 8439
8440 8441 8442 8443 8448 8449 84500 84501 84502
84503 84509
 - 84510 84511 84512 84513 84519 8460 8461 8462 8463
8468 8469 8470 8471 8472 8473 8474 8479 8480 8481
8482
 - 8483 84840 84841 84842 84849 8485 8488 8489 9057
-

Definitions

- Mechanical or non-specific spine pain
- Associated with pain including radicular symptoms
- Excluding
 - Neoplasm, infectious, inflammatory causes
 - Associated with pregnancy or trauma

White Board



Definitions

- **Cherkin DC, Deyo RA, Volinn E, Loeser JD.** Use of the International Classification of Diseases (ICD-9-CM) to identify hospitalizations for mechanical low back problems in administrative databases. *Spine*. 1992;17(7):817-825.
- **Elixhauser A, Andrews RM, Fox S.** *Clinical classifications for health policy research: Discharge statistics by principal diagnosis and procedure*. Rockville, MD: Agency for Health Care Policy and Research; 1993.
- **Dionne CE, Dunn KM, Croft PR, et al.** A consensus approach toward the standardization of back pain definitions for use in prevalence studies. *Spine (Phila Pa 1976)*. Jan 1 2008;33(1):95-103.

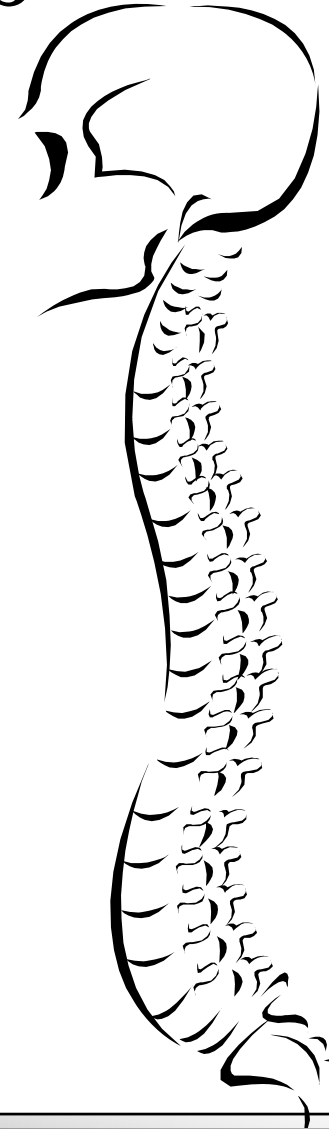
Definitions

- HCUP – CCS
- Cherkin & Deyo
- Martin “Neck and Back”
- Dionne

Definitions

- Conditions that originate anywhere in the spine
 - Neck pain – cervical spine
 - Back pain – thoracic, lumbar, sacral and coccygeal spine
 - Low back pain – lumbar, sacral, coccygeal spine

Definitions



Definitions

- Cervical spine
- Thoracic spine
- Thoraco-lumbar spine
- Lumbar spine
- Lumbo-sacral spine
- Sacral spine
- Coccyx

Consolidated list

- View Excel table :Combined back and neck
- Summary of all codes
- Indicates inclusion and exclusion per each paper or HCUP category

Patterns

- Inclusion/exclusion based on criteria described in paper or software
 - Neck pain does not include TLSC spine and vice versa
 - HCUP definition back=all spine
 - Martin = broadest definition of back and neck: Angevine = most narrow

Testing: Global Exclusions

- View Table 9 Exclusions

Sequential additions - Back

- View Table 7

Sequential additions - Neck

- View Table 8

Surgery and Procedures

- View excel worksheet Surgery and Procedures

Non-specific codes

- View Table 10.

Algorithms to specify surgery

- View Table 11

Defining your cohort

- Mechanical or non-specific spine pain
 - Excluding
 - Neoplasm, infectious, inflammatory causes
 - Associated with pregnancy
 - Associated with trauma (?)
- Surgical and/or non-surgical patients?

Defining your cohort

- Which spinal segment(s)?
 - Back
 - Low back
 - Neck
 - Thoracic spine, sacrum and coccyx

Defining your cohort

- BOAT algorithm (?)
 - What to do about:
 - Ankylosing spondylitis, etc (720.0-720.9)
 - Curvatures of the spine (737.0 – 737.9, excludes congenital)
 - Acquired spondylolisthesis and other acquired deformity of the back or spine (738.4-738.5)
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Defining your cohort

- What to do about:
 - Nonallopathic lesions of the spine (739.1-739.4)
 - Anomalies of the spine (756.10-756.2)
 - Open/closed spinal fractures (805.0-806.9)
 - Other..vertebral dislocations (839.0-839.5)

Defining your cohort

- Codes where spinal segment not specified (e.g. could be back or neck)

How we are proceeding

- *Acute, mechanical or non-specific spine pain*
 - Including all spine segments and diagnoses
 - Identify all Veterans treated for spine pain in FY2002-2009
 - Identify first event in data

How we are proceeding

- Excluding global conditions (if appear twice in a year, etc)
- Excluding post-surgical cases (no spinal procedures within 1 year of entering the spine pain cohort)
- Excluding trauma and fractures
 - E-codes and vertebral fractures open and closed (major codes 805 – 806)

How we are proceeding

- Define spinal segment by ICD code when possible
- Require additional diagnoses to confirm spinal segment for those cases with non-specific coding.
- Summarize and report

Questions?