EPIDEMIOLOGY

General

Epidemiology of Low Back Pain

- >80% of adults experience back pain at some point in life¹
- Incidence is highest in third decade²
- Overall prevalence increase with age until the age of 60–65 years²
- Men and women are equally affected³
- 5th leading reason for medical office visits⁴
- 2nd most common reason (after respiratory illness) for symptom-related physician visits⁴
- Most common cause of work-related disability⁵

 Walker BF. J Spinal Disord 2000; 13(3):205-17; 2. Hoy D et al. Best Pract Res Clin Rheumatol 2010; 24(6):769-813;
 Bassols A et al. Gac Sanit 2003; 17(2):97-107; 4. Hart LG et al. Spine (Phila PA 1976) 1995; 20(1):11-9; 5. National Institutes of Health. Low Back Pain Fact Sheet. Available at: http://www.ninds.nih.gov/disorders/backpain/detail_backpain.htm. Accessed: July 22, 2013.

The Low Back Is the Most Common Site of Chronic Non-cancer Pain

Percentage of Patients with Chronic Pain Complaining of Pain at Common Body Sites*



*Based on physician survey

Boulanger A et al. Pain Res Manage 2007; 12(1):39-47.

Median Prevalence of Low Back Pain



T bars represent interquartile range. Hoy D *et al. Arthritis Rheum* 2012; 64(6):2028-37.

Point Prevalence of Low Back Pain



Walker BF. J Spinal Disord 2000; 13(3):205-17.

Annual Prevalence of Low Back Pain



Walker BF. J Spinal Disord 2000; 13(3):205-17.

Lifetime Prevalence of Low Back Pain



Walker BF. J Spinal Disord 2000; 13(3):205-17.

Prevalence of Low Back Pain



Prevalence of Low Back Pain by Gender



Prevalence of Low Back Pain*

Characteristic	Prevalence, % (95% CI)			PRR
	1992 (n = 8067)	2006 (n = 9924)	Increase (%)	(CI 2.5–97.5%)**
Total	3.9 (3.4–4.4)	10.2 (9.3–11.0)	162	2.62 (2.21–3.13)
Gender				
Male	2.9 (2.2–3.6)	8.0 (6.8–9.2)	176	2.76 (2.11–3.75)
Female	4.8 (4.0–5.6)	12.2 (10.9–13.5)	154	2.54 (2.13–3.08)
Age (years)				
21–34	1.4 (0.8–2.0)	4.3 (3.0–5.6)	201	3.01 (1.95–5.17)
35–44	4.8 (3.3–6.3)	9.2 (7.2–11.2)	92	1.92 (1.35–2.86)
45–54	4.2 (3.0–5.5)	13.5 (11.4–15.7)	219	3.19 (2.29–4.59)
55–64	6.3 (4.2–8.3)	15.4 (12.8–17.9)	146	2.46 (1.73–3.50)
≥65	5.9 (4.5–7.3)	12.3 (10.2–14.4)	109	2.09 (1.62–2.84)
Race/Ethnicity				
Non-Hispanic white	4.1 (3.5–4.7)	10.5 (9.4–11.5)	155	2.55 (2.13–3.05)
Non-Hispanic black	3.0 (2.0–4.0)	9.8 (8.2–11.4)	226	3.26 (2.32–4.96)
Hispanic	†	6.3 (3.8–8.9)		
Other	4.1 (1.4–6.8)	9.1 (6.0–12.0)	120	2.20 (1.16-6.99)

*In North Carolina in 1992 and 2006; ^{**}PRRs and CIs were estimated via bootstrapping;
97.5% CIs were reported rather than to assume normality; [†]Unable to estimate due to small cell count (n <5)
CI = confidence interval; PRR = prevalence rate ratio
Freburger J et al. Arch Intern Med 2009; 169(3):251-8.

Unadjusted Prevalence of Low Back Pain in the General Population

Country	Age range (years)	Prevalence (%)	Standard error (%)	Risk of bias
Point prevalence				
Australia	18–99	25.6	1.00	Low
Belgium	15–99	33.0	0.76	Low
Canada	20–69	28.7	1.35	Low
China	15–99	34.1	3.00	Low
Denmark*	30–60	13.7	0.87	Low
Denmark*	16–99	12.0	0.47	Low
Germany	25–74	39.2	3.41	Low
India	15–99	8.4	0.87	Low
Iran	11-14	15.0	0.51	Low
Spain	20–99	14.8	0.83	Low
Sweden	25–74	23.2	1.05	Low
UK*	18–64	18.0	0.88	Low
UK*	25–64	19.0	0.69	Low
One-week prevalen	ice			
Australia	13–13	7.8	1.29	Low
Bangladesh	15–99	20.1	1.11	Low
Iran	15–99	14.8	0.50	Low
Kuwait	15–99	9.5	0.34	Low
Mexico	18–99	6.3	0.49	Low
Thailand	15–99	11.7	0.92	Low
UK	10–16	15.6	1.62	Low
Vietnam	16-99	11.2	0.68	Low

*More than one study cited; UK = United Kingdom

Hoy D et al. Best Pract Res Clin Rheumatol 2010; 24(6):769-81.

Unadjusted Prevalence of Low Back Pain in the General Population (cont'd)

Country	Age range (years)	Prevalence (%)	Standard error (%)	Risk of bias	
One-month Prevalence					
Finland	30–59	49.5	0.66	Low	
Greece	15–99	31.7	1.47	Low	
Iceland	11–16	34.0	1.03	Low	
UK*	18–75	39.0	0.73	Low	
UK*	11–14	24.0	1.15	Low	
Three-month prevalence					
Spain	65–99	43.9	2.04	Low	
One-year prevalence					
China, Hong Kong	18–99	21.7	2.30	Low	
Denmark*	30–50	56.0	1.37	Low	
Denmark*	12–22	32.4	0.48	Low	
Finland	7–16	9.7	1.23	Low	
Spain	18–99	20.0	1.23	Low	
Ukraine	18–99	50.3	1.70	Low	
UK	20–59	36.1	0.93	Low	

*More than one study cited; UK = United Kingdom

Hoy D et al. Best Pract Res Clin Rheumatol 2010; 24(6):769-81.

Factors Associated with Low Back Pain

- A number of factors can be associated with low back pain not caused by cancer, trauma or infection:
 - Genetics
 - Job dissatisfaction
 - Depression
 - Heavy manual labor
 - Jobs involving vibration
 - Smoking
 - Excess body weight

Devereux JJ *et al. Occup Environ Med* 1999; 56(5):343-53; Pincus T *et al. Spine (Phila Pa 1976)* 2002; 27(5):E109-20; Linton SJ. *J Occup Rehabil* 2001; 11(1):53-66; United States Department of Health and Human Services Public Health Service. *What is back pain*? Available at: <u>http://www.niams.nih.gov/Health_Info/Back_Pain/back_pain_ff.pdf</u>. Accessed: October 15, 2013.

Neuropathic Component of Chronic Low Back Pain

Up to 37% of patients with chronic low back pain may have a **neuropathic component** to their pain

Prevalence of Neuropathic Pain*

Condition	Number of individuals	
Painful diabetic neuropathy	600,000	
Postherpetic neuralgia	500,000	
Cancer-related	200,000	
Spinal cord trauma	120,000	
Type 1 and 2 complex regional pain	100,000	
HIV-related	100,000	
Multiple sclerosis	50,000	
Phantom pain	50,000	
Post-stroke	30,000	
Trigeminal neuralgia	15,000	
Low back pain	2,100,000	
Total (excluding low back pain)	1,765,000	
Total (including low back pain)	3,865,000	

*Based on a population of 270 million; HIV = human immunodeficiency virus Irving GA. *Neurology* 2005; 64(12 Suppl 3):S21-7.

Low Back Pain Is the Most Common Type of Neuropathic Pain*



All other types of pain added together

Low back pain

*Based on a population of 270 million Irving GA. *Neurology* 2005; 64(12 Suppl 3):S21-7.

How many patients develop chronic low back pain?



Baer PA et al. Can J Diagnosis 2010; October:43-50.

Causes of Chronic Low Back Pain



Non-specific pain

Pain associated with radiculopathy and stenosis

Other specific causes

Risk Factors for Low Back Pain

- Age¹
- Low level of education²
- Obesity³
- Heredity⁴
- Work (flexion, torsion of the trunk, vibration)⁵



1. Hurwitz EL, Morgenstern H. *J Clin Epidemiol* 1997; 50(6):669-81; 2. Dionne CE *et al. J Epidemiol Community Health* 2001; 55(7):455-68; 3. Webb R *et al. Spine (Phila Pa* 1976) 2003; 28(11):1195-202; 4. Battié MC *et al. Spine (Phila Pa* 1976). 1995; 20(24):2601-12;

5. Hoogendoorn WE et al. Spine (Phila Pa 1976) 2000; 25(16):2114-25.

Incidence of Low Back Pain



- First episode: **6.3–15.4%**
- Incidence of any episode: **1.5–36%**
- Remission per year: **54–90%**
- Recurrence: **24–80%**

Duration of Low Back Pain



- Overall, low back pain lasts for 42 days¹
- Acute pain persists for 15.5 days¹
- Chronic pain persists for 128.5 days²

van den Hoogen HJM et al. Ann Rheum Dis 1998; 57(1):13-9; von Korff M et al. Spine (Phila Pa 1976) 1993; 18(7):855-62.

Outcome of Low Back Pain

- Most (82%) patients return to work within 3 months
- After 3 months, pain severity, level of disability and return to work are constant
- Low back pain recurs within a year in 50% of patients



Recurrence of Low Back Pain



Recurrence of Low Back Pain after the First Episode

- 60% of patients experience a recurrence of low back pain after a 1st episode
- 33% of patients have relapses of work absence

Remission of Low Back Pain



- **80–90%** of low back pain episodes resolve spontaneously
- Patients who did not return for a follow-up appointment were considered to have recovered

Hanney W et al. Am J Lifestyle Med 2009; 3:63-70; Waddell G. Spine (Phila Pa 1976) 1987; 12(7):632-44.

Prognostic Factors for Recurrence of Low Back Pain



- Anxiety¹
- Depression¹
- Stress¹
- Dissatisfaction with work, monotonous tasks, poor work relationships and stress²

Above factors associated with acute low back pain becoming chronic

1. Linton SJ. J Occup Rehabil 2001; 11(1):53-66; 2. Pincus T et al. Spine (Phila Pa 1976) 2002; 27(5):E109-20.

Consequences of Low Back Pain

- 40–85% of patients with low back pain consult a physician
- 16% of patients experience temporary or permanent total disability
- 34% of patients experience loss of work

Low Back Pain and Visits to Physicians

- **21%** of symptomatic patients consult a physician
- What happens with the remaining **79%** who do not seek medical help?



Medical Care Seeking for Low Back Pain



Macfarlane GJ et al. Pain 2006; 122(3):219-22.

Whom do patients with low back pain consult?



Chiodo A et al. Acute Low Back Pain. Available at: http://www.med.umich.edu/1info/fhp/practiceguides/back/back.pdf. Accessed: October 17, 2013.

Summary

Epidemiology of Low Back Pain: Summary

- Most people suffer from low back pain at some point in their life
 - Incidence is highest in third decade
 - Overall prevalence increases with age until the age of 60–65 years, after which prevalence decreases
 - Men and women are equally affected by low back pain
- 90% of low back pain is benign and self-limiting
 - 70% of patients will experience recurrence within 5 years