# Anterior Instability What's The Evidence?

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## Current State of Health Care in US

Houston Methodist Weill Cornell Medical College

JBJS REVIEWS

MEASURING VALUE IN ORTHOPAEDIC SURGERY

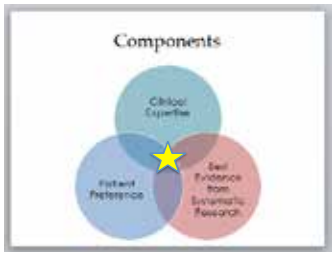


$$\text{Value} = \frac{\text{Benefit}}{\text{Cost}}$$

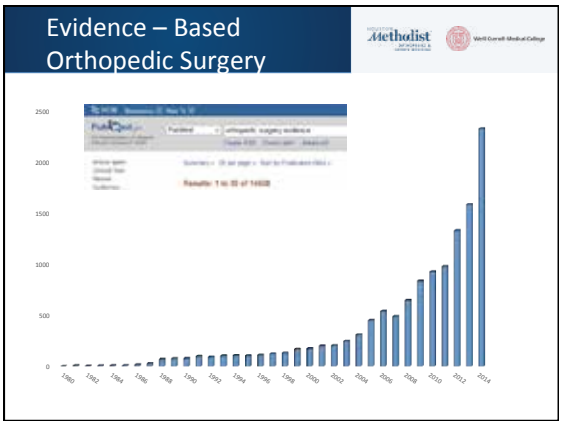
## Why is Evidence Important?


## What This Means…


## How Should We Use Evidence?



## Evidence – Based Orthopedic Surgery



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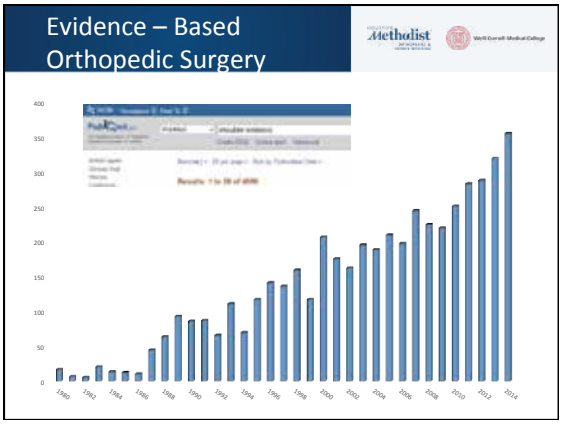

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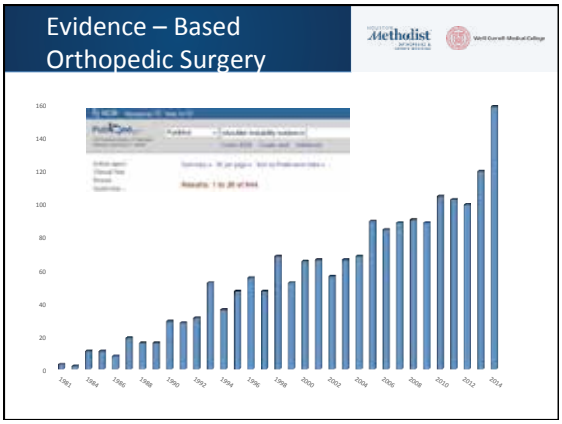
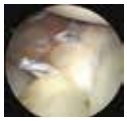


## Anterior Shoulder Instability Evidence

Long-Term Outcomes After Bankart Shoulder Stabilization

Joshua D. Harris, M.D., Anil K. Gupta, M.D., M.B.A., Nathan A. Mall, M.D., Geoffrey D. Abrams, M.D., Frank M. McCormick, M.D., Brian J. Cole, M.D., M.B.A., Bernard R. Bach Jr., M.D., Anthony A. Romeo, M.D., and Nikhil N. Verma, M.D.

- Systematic review
  - Open vs Arthroscopic anterior shoulder stabilization
    - No glenoid / humeral head bone loss
  - Minimum 5 years follow-up (mean 11 years)
  - PRO's
  - Recurrent "instability" spectrum
    - Dislocation
    - Subluxation
    - Apprehension or fear



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- 26 studies (1,800 subjects)
  - All but 2 studies level III or IV evidence, poor MCMS, QAT
  - Mean 28 years of age, 80% male

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- No significant difference between open and arthroscopic suture anchor repair:
  - Recurrent instability: 8.0% vs 8.5%; p = 0.82
  - Return to sport: 89% vs 87%; p = 0.43
  - Arthritis: 33% vs 26%; p = 0.06
  - Rowe or Constant scores; p > 0.05 for both

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- Optimal outcome score for anterior instability:
  - Best psychometric properties
  - WOSI
  - Walch - Duplay
  - MISS

## First-Time Dislocation

Management of Primary Acute Anterior Shoulder Dislocation: Systematic Review and Quantitative Synthesis of the Literature

Umile Giuseppe Longo, M.D., M.Sc., Ph.D., Mattia Loppini, M.D., Giacomo Rizzello, M.D., Mauro Ciuffreda, M.D., Nicola Maffulli, M.D., M.S., Ph.D, and Vincenzo Denaro, M.D.

- 31 studies; 2,800 shoulders;
  - Mean MCMS 67 (fair); level IV evidence
  - Mean age 28 years; Mean follow-up 3.5 years
  - Significantly lower rate of recurrence (OR 13; p<0.0001) with surgery vs non-surgical immobilization
    - 9% vs 38%
  - If non-surgical chosen, significantly lower rate of recurrence (OR 2.3; p=0.002) with ER vs IR
    - 25% vs 50%

## Instability Risk Factors

Risk factors which predispose first-time traumatic anterior shoulder dislocations to recurrent instability in adults: a systematic review and meta-analysis

M Olds,[1] R Ellis,[2] K Donaldson,[1] P Parmar,[1] P Kersten[3]

- 10 studies; 1,300 subjects
  - Age (OR 13)
  - Contact/collision sport (OR 8)
  - Male gender (OR 3)
  - Hyperlaxity (OR 3)
  - Greater tuberosity fx (7X decreased recurrence risk)

## Bone Loss

**Glenoid and humeral head bone loss in traumatic anterior glenohumeral instability: a systematic review**

Umile Giuseppe Longo · Mattia Loppini · Giacomo Rizzello · Giovanni Romeo · Polydoor Emile Huijsmans · Vincenzo Denaro

Knee Surg Sports Traumatol Arthrosc (2014) 22:392–414

- Systematic review
  - Glenoid and/or humeral head bone loss
    - 31% isolated glenoid; 13% isolated humeral; 56% combined
  - Mean follow-up 3 years
  - Primary and revision stabilization
  - PRO's and recurrent instability

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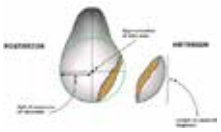
- 27 studies (1,800 subjects)
  - 4 Level III; 23 Level IV
  - Mean CMS 61 (fair)
- Mean age 27 years
- Defined "bone loss" as:
  - < 15%; 15% - 25%; > 25%
  - Engaging, Non-engaging



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***Glenoid***

- Allograft (37%)
  - Iliac crest
  - Femoral head
  - Distal tibia

- Autograft (63%)
  - Bristow (26%)
  - Latarjet (22%)
  - Scope bony Bankart (5%)
  - ORIF (4%)

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***Humerus***

- Remplissage with scope Bankart repair (95%)
  - Open humeral head allograft (3%)
  - Arthroscopic humeral head allograft (2%)

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***Outcomes***

- Recurrent dislocation:
  - 6.5% overall
  - 7.2% (isolated glenoid)
  - 13.3% (isolated humerus)
  - 6.3% (combined)
- Return to sport:
  - 87% at same or higher level
  - 4% at lower level
  - 3% changed sports
  - 6% no return to any sport

## Humeral Bone Loss

Remplissage, Humeral Osteochondral Grafts, Weber Osteotomy, and Shoulder Arthroplasty for the Management of Humeral Bone Defects in Shoulder Instability: Systematic Review and Quantitative Synthesis of the Literature

Arthroscopic Hill-Sachs Remplissage

A Systematic Review

- Bankart + Remplissage lower rate of recurrence than isolated Bankart (OR 0.05; p=0.0002)
- Bankart + Remplissage recurrence 5.4%
- No significant loss of motion in either review

## Complications

**Complications and re-operations after Bristow-Latarjet shoulder stabilization: a systematic review**

Michael J. Griesser, MD[a], Joshua D. Harris, MD[b], Brett W. McCoy, MD[a], Waqas M. Hussain, MD[a], Morgan H. Jones, MD[a], Julie Y. Bishop, MD[b], Anthony Miniaci, MD, FRCSC[a,*]

- 45 studies; 1,900 shoulders
  - All level IV evidence
  - Mean age 26 years
  - Mean follow-up 7 years
  - 90% open; 10% scope

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- 30% total complication rate
  - 7% re-operation rate
  - 2% neurovascular injury
    - Nerve (11 musculocutaneous, 6 axillary, 4 ulnar, 3 radial, 2 median)
    - Plexus (4 trunk-level plexopathy)
    - Artery (6 axillary)
  - 13° loss of ER

## Conclusions

- Quantity of evidence is increasing
- Quality of evidence is improving
- Age, gender, sport are critical risk factors
- Surgery reduces recurrence for first-time dislocation
- Without bone loss, arthroscopic and open repair provide equivalent outcomes
- Recognition of bone loss (isolated, combined)
- Treatment of bone loss (osseous, soft tissue)
- Excellent outcomes can be achieved (>90% success)


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