Orthopaedic Trauma Fracture Care: Pushing the Envelope
San Diego

Clinical Practice Guidelines:

Can I Learn to Live With Them?

Andrew H. Schmidt, MD

What's in the News These Days

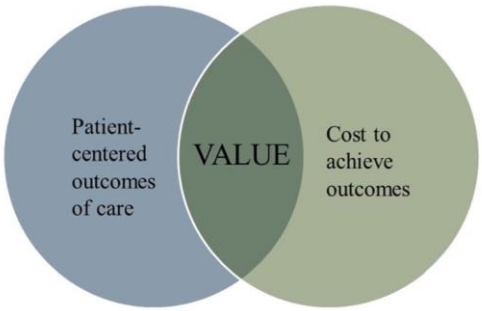
- Excessive Costs of Medical Care
- The Poor quality of Medical Care

EXHIBIT ES-1. OVERALL RANKING

COUNTRY RANKINGS
Top 2*
Middle
Bottom 2*

	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
OVERALL RANKING (2013)	4	10	9	5	5	7	7	3	2	1	11
Quality Care	2	9	8	7	5	4	11	10	3	1	5
Effective Care	4	7	9	6	5	2	11	10	8	1	3
Safe Care	3	10	2	6	7	9	11	5	4	1	7
Coordinated Care	4	8	9	10	5	2	7	11	3	1	6
Patient-Centered Care	5	8	10	7	3	6	11	9	2	1	4
Access	8	9	11	2	4	7	6	4	2	1	9
Cost-Related Problem	9	5	10	4	8	6	3	1	7	1	11
Timeliness of Care	6	11	10	4	2	7	8	9	1	3	5
Efficiency	4	10	8	9	7	3	4	2	6	1	11
Equity	5	9	7	4	8	10	6	1	2	2	11
Healthy Lives	4	8	1	7	5	9	6	2	3	10	11
Health Expenditures/Capita, 2011**	$3,800	$4,522	$4,118	$4,495	$5,099	$3,182	$5,669	$3,925	$5,643	$3,405	$8,508

Notes: * Includes ties. ** Expenditures shown in $US PPP (purchasing power parity); Australian $ data are from 2010.
Source: Calculated by The Commonwealth Fund based on 2011 International Health Policy Survey of Sicker Adults; 2012 International Health Policy Survey of Primary Care Physicians; 2013 International Health Policy Survey; Commonwealth Fund National Scorecard 2013; World Health Organization; and Organization for Economic Cooperation and Development, OECD Health Data, 2013 (Paris: OECD, Nov. 2013).



HEALTH POLICY

Hospitals Cut Costs by Getting Doctors to Stick to Guidelines

'Choosing Wisely' Campaign Has Physicians Weigh in on Standardizing Care

By JEANNE WHALEN
Updated Sept. 22, 2014 7:00 p.m. ET

CMS

- Current annual unfunded liability for Medicare alone estimated at > $25 billion and estimated depletion of the trust fund by 2026.

Health Policy

- PPACA assumes widespread provision of healthcare services that are not based on evidence, do not improve health and outcomes, and, if mitigated, would reduce health care costs and improve quality.

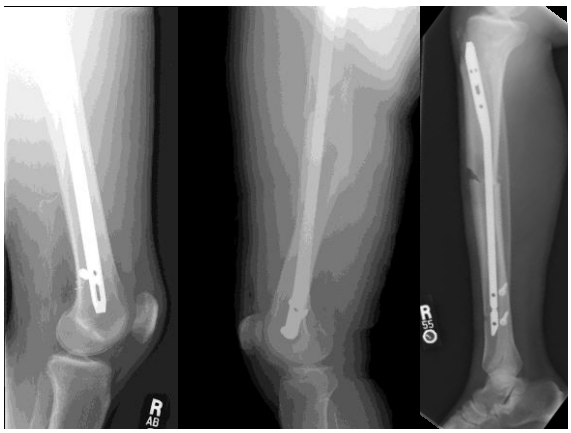
Health Care Value

= Quality / Cost

Can we *really* measure either one?

Quality Measures

- Don't exist in any meaningful way.
- PMI, PQRS, …
- Process measures frequently substituted:
  - Time to antibiotics
  - Foley
  - DVT/ PE



Cost

- Information simply not available...

Patient Protection and Affordable Care Act

- Unsustainable federal spending on health care:
  - Nearly $24 billion unfunded Medicare costs in 2012.
  - Depletion of trust fund anticipated by 2026
  - Goal: mitigate the impending financial disaster by standardizing care and eliminating payment for “services” that does not improve health or outcome.

Variation in Care Delivery

- Seen as a consequence of the lack of scientific validation for much of what we do.

N Engl J Med 2003;348:2635-45.
The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

The Quality of Health Care Delivered to Adults in the United States

Elizabeth A. McGlynn, Ph.D., Steven M. Asch, M.D., M.P.H., John Adams, Ph.D., Joan Keesey, B.A., Jennifer Hicks, M.P.H., Ph.D., Alison DeCristofaro, M.P.H., and Eve A. Kerr, M.D., M.P.H.

6712 participants
Overall, 54.9 % received recommended care

N Engl J Med 2003;348:2635-45.
The NEW ENGLAND JOURNAL of MEDICINE

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Orthopedic Conditions	n=302	57.2% (50.8-63.7)
Osteoarthritis	n=598	57.3% (53.9-60.7)
Hip Fracture	n=110	22.8% (6.2-39.5)

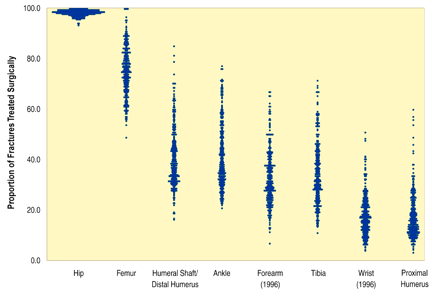
EBM

- "Integration of best research evidence with clinical expertise and patient values"
- What works?
- What doesn't work?

- Improve quality of care
- Improve outcomes

Standardization of care is an attractive “solution”

- Checklist analogy: improve safety by eliminating mistakes in processes.
- But… Not really applicable to medical decision – making i.e. “how am I going to treat this problem in this patient”.



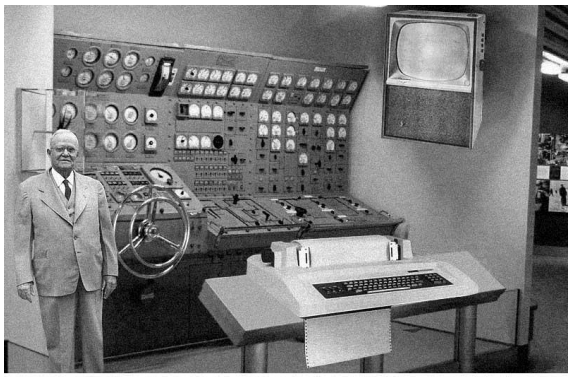
Dartmouth Atlas of Health Care

“Catch – 22”

- Variation is caused by lack of a “base of evidence”, but how will evidence be established when there is such variation in care ?
- How can studies ever be up-to-date when they take so long, and don’t include the “latest and greatest”.

- “It’s tough to make predictions, especially about the future”

Yogi Berra

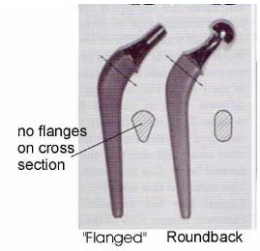


Scientists from the RAND Corporation have created this model to illustrate how a "home computer" could look like in the year 2004. However the needed technology will not be economically feasible for the average home. Also the scientists readily admit that the computer will require not yet invented technology to actually work, but 50 years from now scientific progress is expected to solve these problems. With teletype interface and the Fortran language, the computer will be easy to use and only

3M Capital Hip failure – tragedy that led to establishment of National Joint Registry in England

- http://www.njrcentre.org.uk -

HOME | HISTORY TOTAL JOINTS



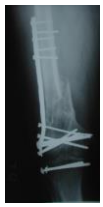
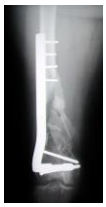
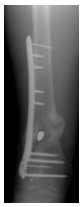
Recent Orthopedic Trauma Innovations

- Techniques
- Implants
- Orthobiologics

Implants

- Locking Plates
  - Volar distal radius
  - Proximal Humerus
  - Distal Humerus
  - Distal Femur
  - Proximal Tibia
  - Distal Tibia

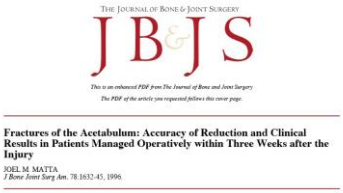
- Have any of these been compared to a another standard?


- Is there a “Gold Standard” ?

How do you define the standard?

- FDA approval
- Sales reps
- Advertisements
- Case series
- Thought Leaders


THE JOURNAL OF BONE & JOINT SURGERY

JB&JS

This is an enhanced PDF from The Journal of Bone and Joint Surgery

The PDF of the article you requested follows this cover page.

Fractures of the Acetabulum: Accuracy of Reduction and Clinical Results in Patients Managed Operatively within Three Weeks after the Injury

JOEL M. MATTA

J Bone Joint Surg Am. 78:1632-45, 1996

- Best reported results…
- What works in my hands?

Evidence - Based Medicine

- Medical Literature
  - Medline
  - Knowledge Finder ™
  - Cochrane Database of Systematic Reviews
  - Institute Of Health Quality Reports

Clinical Practice Guidelines

- Systematic approach to exploring, evaluating, and synthesizing the literature so that the individual reader need not perform each of these time-consuming activities.

Clinical Practice Guidelines

- Generally developed by a group of experts using a defined and rigorous process.
- Potential benefit and harm for patients, physicians, and the healthcare system.

Patients

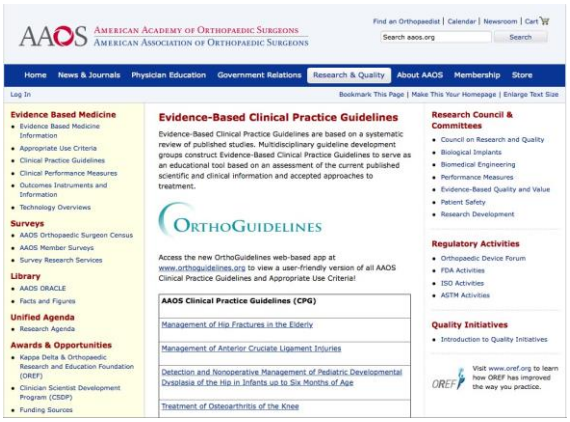
- Benefits
  - Improve outcomes
  - Improve consistency of care
  - Empower informed decisions
  - Influence health policy
- Harm
  - Promote suboptimal, ineffective, or even harmful practices if not evidence-based.
  - Inflexibility may lead to care inappropriate for a given patient.
  - Mislead patients
  - Inappropriately affect public policy for patients.

Physicians

- Benefits
  - Improve decision-making
  - Support QI activities
  - Improve medical research
  - Improve payment for services
  - Medicolegal protection
- Harm
  - Inaccurate scientific information / clinical "advice"
  - Inconsistent, inconvenient, time-consuming, out-dated
  - Inappropriate measurement of "quality"
  - Increase malpractice exposure
  - Harm research efforts

Healthcare System

- Benefits
  - Improve efficiency
  - Optimize value
  - PR
- Harm
  - Escalates use
  - Compromise efficiency
  - Wasted resources



- Trauma
  - Management of Hip Fractures in the Elderly
  - Treatment of Distal Radius Fractures
  - Treatment of Pediatric Diaphyseal Femur Fractures
- Sports Medicine
  - Management of Anterior Cruciate Ligament Injuries
  - Diagnosis and Treatment of Osteochondritis Dissecans
  - Diagnosis And Treatment of Acute Achilles Tendon Rupture
- Pediatrics
  - Detection and Nonoperative Management of Pediatric Developmental Dysplasia of the Hip in Infants up to Six Months of Age
  - The Treatment of Pediatric Supracondylar Humerus Fractures
- Adult
  - Treatment of Osteoarthritis of the Knee
  - Preventing Venous Thromboembolic Disease in Patients Undergoing Elective Hip and Knee Arthroplasty
  - Diagnosis of Periprosthetic Joint Infections of the Hip and Knee
- General
  - Prevention of Orthopaedic Implant Infection in Patients Undergoing Dental Procedures
- Shoulder
  - Optimizing the Management of Rotator Cuff Problems
  - Treatment of Glenohumeral Joint Osteoarthritis
- Spine
  - Treatment of Symptomatic Osteoporotic Spinal Compression Fractures
- Hand
  - Treatment of Carpal Tunnel Syndrome
  - Diagnosis of Carpal Tunnel Syndrome

Clin Orthop Relat Res (2014) 472:1982–1988
DOI 10.1007/s11999-014-3530-0

Clinical Orthopaedics and Related Research®

CLINICAL RESEARCH

High Methodologic Quality But Poor Applicability: Assessment of the AAOS Guidelines Using The AGREE II Instrument

Sanjeeve Sabharwal MBBS, MRCS, MSc,
Nirav K. Patel MBBS, MRCS, MSc, Salman Gauher MBBS, BSc,
Ian Holloway MBBS, FRCS (Orth), Thanos Athansiou MD, PhD, FRCS, FETCS

Reviewed all 14 AAOS CPG's according to Agree II tool.

High quality
Poor applicability

Impact of Clinical Practice Guideline on the Treatment of Pediatric Femoral Fractures in a Pediatric Hospital

Matthew E. Oetgen, MD, Allison M. Blatz, BA, and Allison Matthews, MS

Investigation performed at the Department of Orthopaedic Surgery and Sports Medicine, Children's National Medical Center, Washington, District of Columbia

Percentage of treatment rendered adhering to the clinical practice guideline recommendations was compared in the pre-guideline group (prior to June 2009) and the post-guideline group (after June 2009).

TABLE III Results for Each Clinical Practice Guideline Recommendation*

Recommendation	Treated per Recommendation (%)		Risk Ratio†	P Value
	Pre-Guideline Group	Post-Guideline Group		
Perform a non-accidental trauma work-up for patients who are younger than thirty-six months of age	55.5	48	0.86 (0.63 to 1.18)	0.40
Use a Pavlik harness or spica cast for patients who are younger than six months of age	90	100	1.11 (0.90 to 1.37)	0.36
Use a spica cast for patients who are six months to five years of age and have <2-cm fracture shortening	95	84	0.88 (0.79 to 0.99)	0.07
Alter the treatment for >2-cm shortening in spica cast	0	22	NA	0.09
Use flexible nails for patients who are five to eleven years of age	66	43	0.65 (0.43 to 0.96)	0.03
Use a nail or plate for patients who are older than eleven years of age	96	94	NA	0.63
Use regional pain management as an option postoperatively	0.7	0	NA	0.40

*NA = not available. †The values are given as the risk ratio, with the 95% confidence interval in parentheses.

DVT: Guidelines in Conflict

AAOS
American Academy of Orthopaedic Surgeons

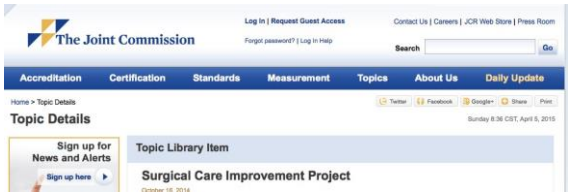
American College of CHEST Physicians

American College of CHEST Physicians

- Updated regularly, based on published level 1 evidence
- Primary outcome = venographically determined DVT
- Aspirin not part of the studies included
- Not much emphasis on the potential harm of bleeding complications.

American College of CHEST Physicians

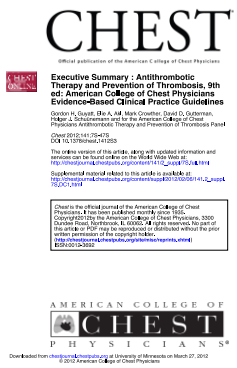
- Conclusion: LMWH acceptable



Elective Total Hip Replacement Appendix A, Table 5.22	Any of the following started within 24 hours of surgery: • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor • Oral Factor Xa Inhibitor[3] • Warfarin
Elective Total Knee Replacement Appendix A, Table 5.23	Any of the following: • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor • Oral Factor Xa Inhibitor[3] • Warfarin • Intermittent pneumatic compression devices (IPC) • Venous foot pump (VFP)
Hip Fracture Surgery Appendix A, Table 5.24	Any of the following: • Low-dose unfractionated heparin (LDUH) • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor • Warfarin

AAOS
American Academy of Orthopaedic Surgeons

- AAOS: LMWH and aspirin acceptable


CHEST
Official publication of the American College of Chest Physicians

Executive Summary : Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines

Gordon H. Guyatt, Elie A. Akl, Mark Crowther, David D. Gutterman, Holger J. Schünemann and for the American College of Chest Physicians Antithrombotic Therapy and Prevention of Thrombosis Panel

Chest 2012;141;7S-47S
DOI 10.1378/chest.141.2_suppl.7S

The online version of this article, along with updated information and services can be found online on the World Wide Web at:
http://chestjournal.chestpubs.org/content/141/2_suppl/7S.full.html

Supplemental material related to this article is available at:
http://chestjournal.chestpubs.org/content/suppl/2012/02/09/141.2_suppl.7S.DC1.html

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ISSN:0012-3692

AMERICAN COLLEGE OF CHEST PHYSICIANS

OR Manager Inc

OR Manager
Vol. 27 No. 3
March 2011

Value-based purchasing

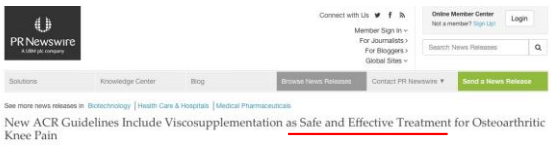
SCIP measures to weigh in Medicare pay starting in 2013

Treatment of Osteoarthritis of the Knee, 2nd edition
SUMMARY OF RECOMMENDATIONS

RECOMMENDATION 9
We cannot recommend using hyaluronic acid for patients with symptomatic osteoarthritis of the knee.
Strength of Recommendation: Strong

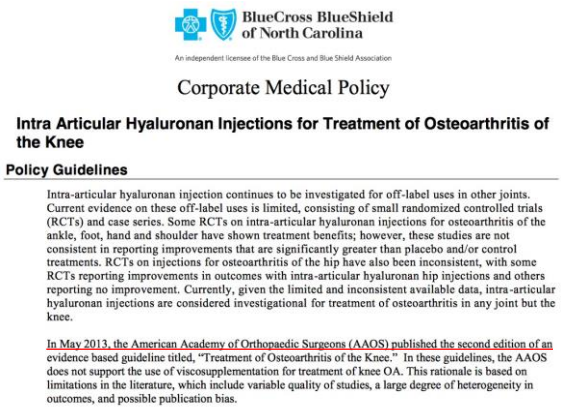
Description: Evidence is based on two or more "High" strength studies with consistent findings for recommending for or against the intervention. A **Strong** recommendation means that the quality of the supporting evidence is high. A harms analysis on this recommendation was not performed.

Implications: Practitioners should follow a **Strong** recommendation unless a clear and compelling rationale for an alternative approach is present.



New ACR Guidelines Include Viscosupplementation as Safe and Effective Treatment for Osteoarthritic Knee Pain

ACR (Hochberg et al., 2012)	No evidence-based recommendation regarding the use of intraarticular HA. Conditional recommendation tramadol, duloxetine, or intraarticular HA in lieu of oral NSAIDs for elderly individuals (≥75 years of age). *Not evidence based.*	5 (Literature search only through December 2010.)



BlueCross BlueShield of North Carolina

An independent licensee of the Blue Cross and Blue Shield Association

Corporate Medical Policy

Intra Articular Hyaluronan Injections for Treatment of Osteoarthritis of the Knee

Policy Guidelines

Intra-articular hyaluronan injection continues to be investigated for off-label uses in other joints. Current evidence on these off-label uses is limited, consisting of small randomized controlled trials (RCTs) and case series. Some RCTs on intra-articular hyaluronan injections for osteoarthritis of the ankle, foot, hand and shoulder have shown treatment benefits; however, these studies are not consistent in reporting improvements that are significantly greater than placebo and/or control treatments. RCTs on injections for osteoarthritis of the hip have also been inconsistent, with some RCTs reporting improvements in outcomes with intra-articular hyaluronan hip injections and others reporting no improvement. Currently, given the limited and inconsistent available data, intra-articular hyaluronan injections are considered investigational for treatment of osteoarthritis in any joint but the knee.

In May 2013, the American Academy of Orthopaedic Surgeons (AAOS) published the second edition of an evidence based guideline titled, "Treatment of Osteoarthritis of the Knee." In these guidelines, the AAOS does not support the use of viscosupplementation for treatment of knee OA. This rationale is based on limitations in the literature, which include variable quality of studies, a large degree of heterogeneity in outcomes, and possible publication bias.

Summary

- CPG's definitely affect policy.
- Policy is linked to reimbursement.
- May also affect:
  - Medicolegal environment
  - Ability to use new technology

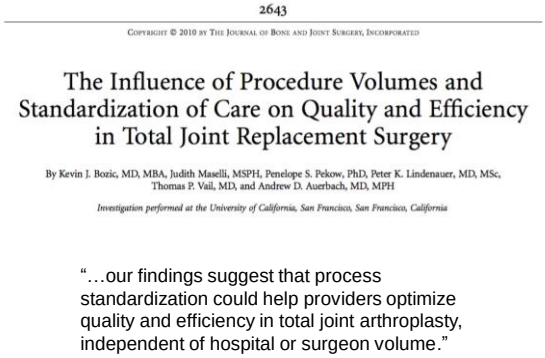
- Clinicians should not generalize a CPG's recommendations to clinical questions or patient populations apart from those specifically identified in the CPG, nor should they infer more than what is stated in each recommendation.

AAOS CPG "Management of Hip Fractures in the Elderly"

- ''Moderate evidence supports higher dislocation rates with a posterior approach in the treatment of displaced femoral neck fractures with hip arthroplasty''
- This does not mean posterior approaches are not appropriate

Care Standardization is Beneficial

- Generic
  - OR scheduling
  - Positioning
  - Antibiotic protocols
- Specific injuries
  - Massive blood transfusion
  - Hemodynamically – unstable pelvis
  - Timing of fracture fixation



2643

The Influence of Procedure Volumes and Standardization of Care on Quality and Efficiency in Total Joint Replacement Surgery

By Kevin J. Bozic, MD, MBA, Judith Maselli, MSPH, Penelope S. Pekow, PhD, Peter K. Lindenauer, MD, MSc, Thomas P. Vail, MD, and Andrew D. Auerbach, MD, MPH

Investigation performed at the University of California, San Francisco, San Francisco, California

"…our findings suggest that process standardization could help providers optimize quality and efficiency in total joint arthroplasty, independent of hospital or surgeon volume."

BJA

British Journal of Anaesthesia 114 (6): 958–62 (2015)

doi: 10.1093/bja/aev063
Advance Access Publication 16 March 2015
Quality and Patient Safety

QUALITY AND PATIENT SAFETY

Safety culture and the 5 steps to safer surgery: an intervention study

M. R. Hill[1,*], M. J. Roberts[2], M. L. Alderson[1] and T. C. E. Gale[1,2]

[1]Department of Anaesthesia, Plymouth Hospitals NHS Trust, Plymouth PL6 8DH, UK, and [2]Collaboration for the Advancement of Medical Education Research and Assessment (CAMERA), Plymouth University Peninsula Schools of Medicine and Dentistry, Plymouth PL6 8BU, UK

*Corresponding author. E-mail: matt.hill1@nhs.net

Surgical Safety Checklist

World Health Organization | Patient Safety

Before induction of anaesthesia (with at least nurse and anaesthetist)

- **Has the patient confirmed his/her identity, site, procedure, and consent?** ☐ Yes
- **Is the site marked?** ☐ Yes ☐ Not applicable
- **Is the anaesthesia machine and medication check complete?** ☐ Yes
- **Is the pulse oximeter on the patient and functioning?** ☐ Yes
- **Does the patient have a:**
  - **Known allergy?** ☐ No ☐ Yes
  - **Difficult airway or aspiration risk?** ☐ No ☐ Yes, and equipment/assistance available
  - **Risk of >500ml blood loss (7ml/kg in children)?** ☐ No ☐ Yes, and two IVs/central access and fluids planned

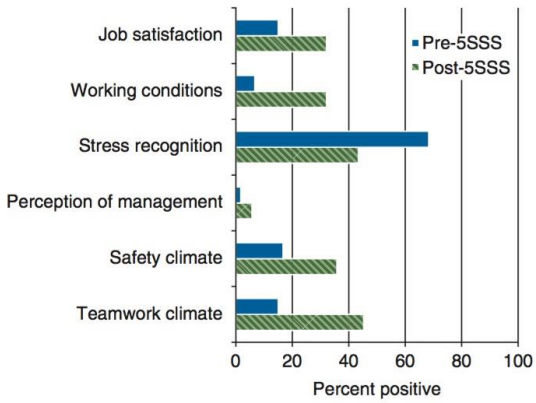
Before skin incision (with nurse, anaesthetist and surgeon)

- ☐ **Confirm all team members have introduced themselves by name and role.**
- ☐ **Confirm the patient's name, procedure, and where the incision will be made.**
- **Has antibiotic prophylaxis been given within the last 60 minutes?** ☐ Yes ☐ Not applicable
- **Anticipated Critical Events**
  - **To Surgeon:** ☐ What are the critical or non-routine steps? ☐ How long will the case take? ☐ What is the anticipated blood loss?
  - **To Anaesthetist:** ☐ Are there any patient-specific concerns?
  - **To Nursing Team:** ☐ Has sterility (including indicator results) been confirmed? ☐ Are there equipment issues or any concerns?
- **Is essential imaging displayed?** ☐ Yes ☐ Not applicable

Before patient leaves operating room (with nurse, anaesthetist and surgeon)

- **Nurse Verbally Confirms:** ☐ The name of the procedure ☐ Completion of instrument, sponge and needle counts ☐ Specimen labelling (read specimen labels aloud, including patient name) ☐ Whether there are any equipment problems to be addressed
- **To Surgeon, Anaesthetist and Nurse:** ☐ What are the key concerns for recovery and management of this patient?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged. Revised 1 / 2009 © WHO, 2009



Thank You