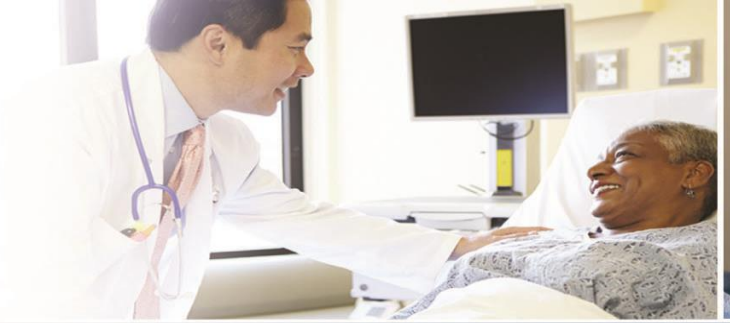
North American Partners in Anesthesia®



Presurgical Optimization:

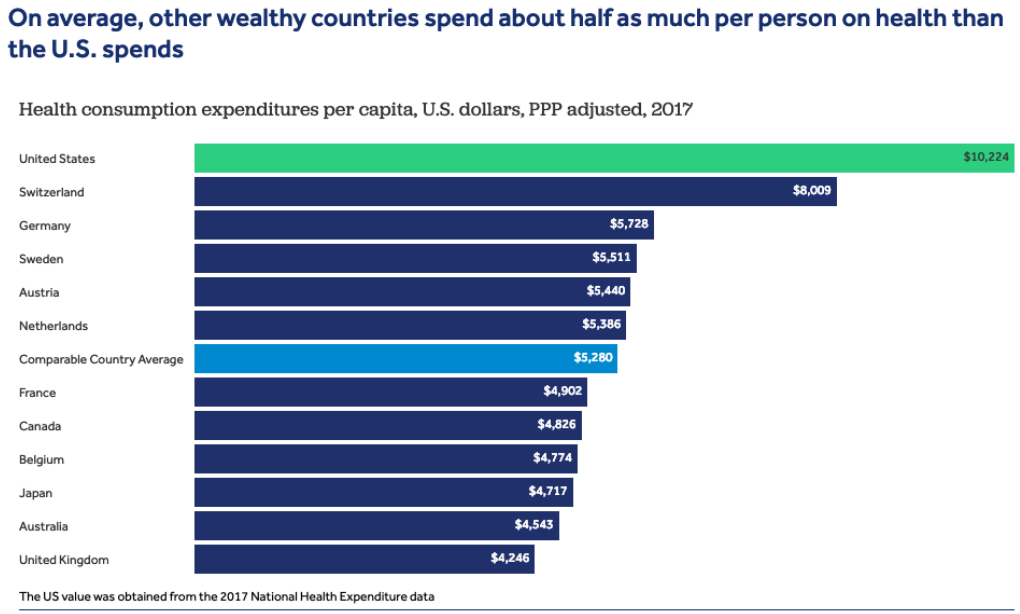
Decreasing Costs to Health Systems and Patients by Standardizing Testing and Medical Evaluations

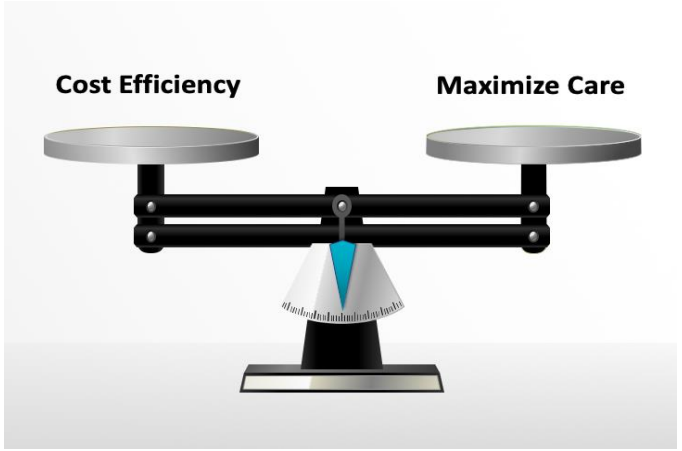
Steven Herling, DO

- Chairman, PST Pillar, ***Northwell Health***
- Director, Perioperative Medicine, ***North American Partners in Anesthesia***
- Assistant Professor, ***Zucker School of Medicine at Hofstra/Northwell***

Perioperative Care

- Primary source of hospital admissions
- May drive 55-65% of hospital margins
- Highly innovative, technologically advanced
- 46-65% of all adverse events





Bundled Payments for Care Improvement Advanced | BPCI Advanced

Fact Sheet

CMS

Implementing BPCI Advanced: Model Highlights

Criteria

Entities eligible to be Participants in the Model: Acute Care Hospitals (ACHs) and Physician Group Practices (PGPs) may participate as Convener Participants or Non-Convener Participants; other entities that are either Medicare-enrolled or not Medicare-enrolled providers or suppliers may participate as Convener Participants only.

Criteria for Beneficiary Inclusion in a Clinical Episode: A Medicare beneficiary entitled to benefits under Part A and enrolled under Part B for the entirety of a Clinical Episode on whose behalf an Episode Initiator submits a claim to Medicare FFS for the Anchor Stay or Anchor Procedure associated with the Clinical Episode for which a Participant has committed to be held accountable. Beneficiary Exclusions: The term BPCI Advanced Beneficiary specifically excludes: (1) Medicare beneficiaries covered under United Mine Workers or managed care plans (e.g., Medicare Advantage, Health Care Prepayment Plans, or cost-based health maintenance organizations); (2) beneficiaries eligible for Medicare on the basis of end-stage renal disease (ESRD); (3) Medicare beneficiaries for whom Medicare is not the primary payer; and (4) Medicare beneficiaries who die during the Anchor Stay or Anchor Procedure.

Episodes

29 Inpatient Clinical Episodes

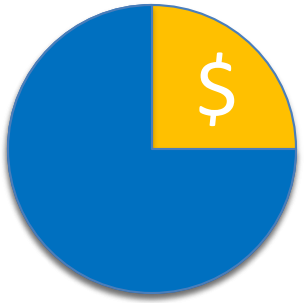
- Disorders of the liver excluding malignancy, cirrhosis, alcoholic hepatitis *(New episode added to BPCI Advanced)
- Acute myocardial infarction
- Back & neck except spinal fusion
- Cardiac arrhythmia
- Cardiac defibrillator
- Cardiac valve
- Cellulitis
- Cervical spinal fusion
- COPD, bronchitis, asthma
- Combined anterior posterior spinal fusion
- Congestive heart failure
- Coronary artery bypass graft
- Double joint replacement of the lower extremity
- Fractures of the femur and hip or pelvis
- Gastrointestinal hemorrhage
- Gastrointestinal obstruction
- Hip & femur procedures except major joint
- Lower extremity/humerus procedure except hip, foot, femur
- Major bowel procedure
- Major joint replacement of the lower extremity
- Major joint replacement of the upper extremity
- Pacemaker
- Percutaneous coronary intervention
- Renal failure
- Sepsis
- Simple pneumonia and respiratory infections
- Spinal fusion (non-cervical)
- Stroke
- Urinary tract infection

3 Outpatient Clinical Episodes

- Percutaneous Coronary Intervention (PCI)
- Cardiac Defibrillator
- Back & Neck Except Spinal Fusion

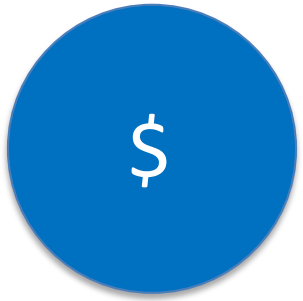
3

Reimbursements available for the hospital, surgeon, etc.



Extra testing costs

Unnecessary tests cut into the total amount given.



NAPA

“Choosing Wisely” Clinical Support Adherence and Associated Inpatient Outcomes

Andrew M. Heekin, PhD; John Kontor, MD; Harry C. Sax, MD; Michelle S. Keller, MPH; Anne Wellington, BA; and Scott Weingarten, MD

26,424 patients over 3 years, non-adherence led to:

7.3% increase in encounter costs

6.2% increase in length of stay

1.14 odds ratio of readmission within 30 days

1.29 odds ratio of complications

Appropriate Use Criteria for Advanced Diagnostic Imaging Services
Summary of Provisions
CY 2016 Medicare Physician Fee Schedule Final Rule
General Overview:

The CY 2016 Medicare Physician Fee Schedule (PFS) Final Rule outlines the initial component of the new Medicare AUC program the Centers for Medicare and Medicaid Services' (CMS) plan for implementing the remaining components. The "Protecting Access to Medicare Act of 2014" (PAMA) established a program requiring adherence to AUC using clinical decision support (CDS) for advanced imaging services. The law requires that health care professionals who furnish an advanced imaging test, which includes nuclear cardiac imaging, must document the ordering professional's consultation of AUC to be paid for the service.

"The law requires that health care professionals who furnish an advanced imaging test, which includes nuclear cardiac Imaging, must document the ordering professional's consultation of AUC to be paid for the service."

Assessment and Reporting of Perioperative Cardiac Risk by Canadian General Internists

Art or Science?

Taha Taher, MD, Nadia A Khan, MD, P J Devereaux, MD, Bruce W Fisher, MD, MSc, William A Ghali, MD, MPH, Finlay A McAlister, MD, MSc, and for the Canadian Perioperative Research Group

Performed an average of 17 assessments per month

Gave up to ***27*** different definitions for estimated level of cardiac risk

- < 1% to < 20% for low risk
- 1-2% to 20-50% for moderate risk
- >2% to >50% for high risk

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1495134/

Impact of the Choice of Risk Model for Identifying Low-risk Patients Using the 2014 American College of Cardiology/American Heart Association Perioperative Guidelines

Laurent Glance, MD; Eric Faden, MD; Richard Dutton, MD, MBA; Stewart Lustik, MD; Yue Li, PhD; Michael Eaton, MD; Andrew Dick, PhD

- Revised Cardiac Risk Index (RCRI)
- ACS NSQIP
- ACS NSQIP – MICA

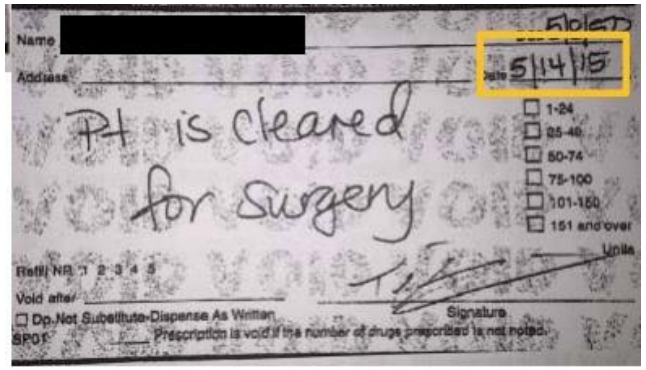
- Disagree 30% of the time
  - Different definition of MACE

https://www.ncbi.nlm.nih.gov/pubmed/30001221

Cleared vs. Optimized

Patient with Anemia for THA

- "Cleared"



  - Transfusion in the OR
  - Longer length of stay
  - Higher cost
  - Higher readmission rate

- Optimized
  - Postpone procedure
  - Treat anemia
  - Shorter length of stay
  - Lower cost
  - Lower complication rate

Transfusing Patients is Expensive—
Preoperative Anemia Management Saves Blood and Money

Christine Marie Cahill, MS, BSN, RN; Neil Blumberg, MD; Amber Melvin, MD; Peter Knight, MD; Marjorie Gloff, MD; Renee Robinson, FNP; Frank Akwaa, MD; Majed A. Refaai, MD; University of Rochester, Rochester, NY.

- Anemia is prevalent in up to 50% of hospitalized patients
- Anemia is an independent risk factor for hospitalization, readmission, increased patient length of stay; increased likelihood that patient will require transfusions
- Feb 2016-September 2017 pilot program at University of Rochester and Strong Memorial Hospital, Rochester, NY:
  - 58 elective cardiac surgery patients diagnosed as anemic compared to control group of patients who had cardiac surgery in 2015
  - Anemia management group received 10 RBC units intraop & 13 RBC units postop vs. 68 intraop & 22 postop in control group
  - RBC transfusions rate was 24% in pilot group vs 60% in control group
  - Total cost savings = $106,546 over life of the program

https://www.mdedge.com/hematology-oncology/article/190805/anemia/preoperative-anemia-management-saves-blood-money

The Washington Post

Health & Science

Even if a medical test shows an abnormality, you may not need to worry about it

(iStock)

By **Emily Sohn**
June 3, 2018

I have an extra vein into my heart that, in most people, disappears during embryonic development. My eyeballs are shaped more like lemons than like baseballs. And I once woke up after a foot surgery to hear the doctor say, "I've never seen anything like that before."

https://www.washingtonpost.com/national/health-science/even-if-a-medical-test-shows-an-abnormality-you-may-not-need-to-worry-about-it/2018/06/01/42518eb6-6370-11e8-a768-ed043e33f1dc_story.html?

An opportunity for greatest value enhancement

Management of most complex episodes of care for sickest patients

55 million patients will be ≥ 65 years of age

50% of adult population will have at least 1 chronic disease

25% will have 2 or more chronic conditions

Surgical patients with multiple chronic conditions have a higher risk of complications
Average cost of a complication is $12,000 per episode

Association Between Wait Time and 30-Day Mortality in Adults Undergoing Hip Fracture Surgery

Daniel Pincus, MD; Bheeshma Ravi, MD, PhD; David Wasserstein, MD, MSc; Anjie Huang, MSc; J. Michael Paterson, MSc; Avery B. Nathens, MD, MPH, PhD; Hans J. Kreder, MD, MPH; Richard J. Jenkinson, MD, MSc; Walter P. Wodchis, PhD

Study of 42,230 patients showed that 30-day mortality is significantly greater when surgery is delayed by more than 24 hours.

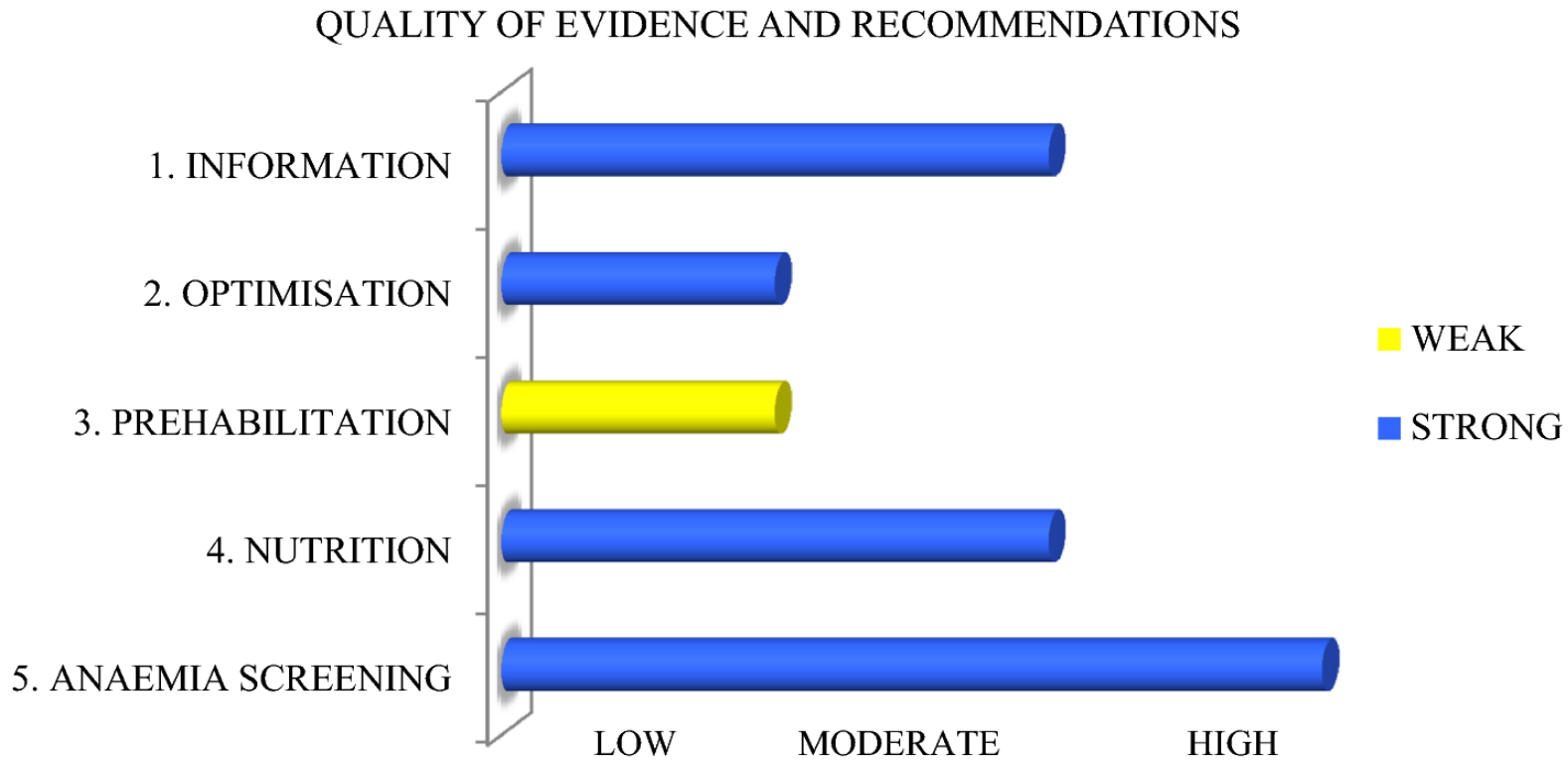
https://perioperative.files.wordpress.com/2017/12/hip-fracture-timing-jama-2017.pdf

World J Surg
https://doi.org/10.1007/s00268-018-4844-y

SCIENTIFIC REVIEW

Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018

U. O. Gustafsson[1] · M. J. Scott[2,3] · M. Hubner[4] · J. Nygren[5] · N. Demartines[4] · N. Francis[6,7] · T. A. Rockall[8] · T. M. Young-Fadok[9] · A. G. Hill[10] · M. Soop[11] · H. D. de Boer[12] · R. D. Urman[13] · G. J. Chang[14] · A. Fichera[15] · H. Kessler[16] · F. Grass[4] · E. E. Whang[17] · W. J. Fawcett[18] · F. Carli[19] · D. N. Lobo[20] · K. E. Rollins[20] · A. Balfour[21] · G. Baldini[19] · B. Riedel[22] · O. Ljungqvist[23]



Impact of a Novel Preoperative Patient-centered Surgical Wellness Program

Kelley KE, Fajardo AD, Strange NM, Harmon CA, Pawlecki K, Sieber M, Walke N, Fadel WF, Wooden WA, Sadowski J, Birdas TJ, Stevens LH, Rozycki GS, Schmidt CM

Surgical Site Infections (SSI):

- Most common and costly healthcare associated infection (20-31%)
- $1-10 billion in direct/indirect costs annually
- 2-11 fold increase in mortality

Wellness Bundle:

chlorhexidine, supplements, incentive spirometer, topical mupirocin, Smoking cessation information

12,396 patients Intervention group vs. 9,202 control patients

Decrease SSI, C.Diff, CAUTI

Cost of bundle $323K ($24/patient)

Savings – recouped cost PLUS $1 million

https://www.ncbi.nlm.nih.gov/pubmed/30138164

Colorectal Surgical Site Infection Prevention Kits Prior to Elective Colectomy Improve Outcomes

Deery SE, Cavallaro PM, McWalters ST, Reilly SR, Bonnette HM, Rattner DW, Mort EA, Hooper DC, Del Carmen MG, Bordeianou LG.

Massachusetts General Hospital

Free SSI prevention kit:

- carbohydrate rich drink for DOS
- mechanical bowel prep
- chlorhexidine body wash
- 2 oral antibiotics

50% reduction in SSI and anastamotic leaks

https://www.ncbi.nlm.nih.gov/pubmed/30688687

A Preoperative Scale for Determining Surgical Readmission Risk After Total Hip Replacement

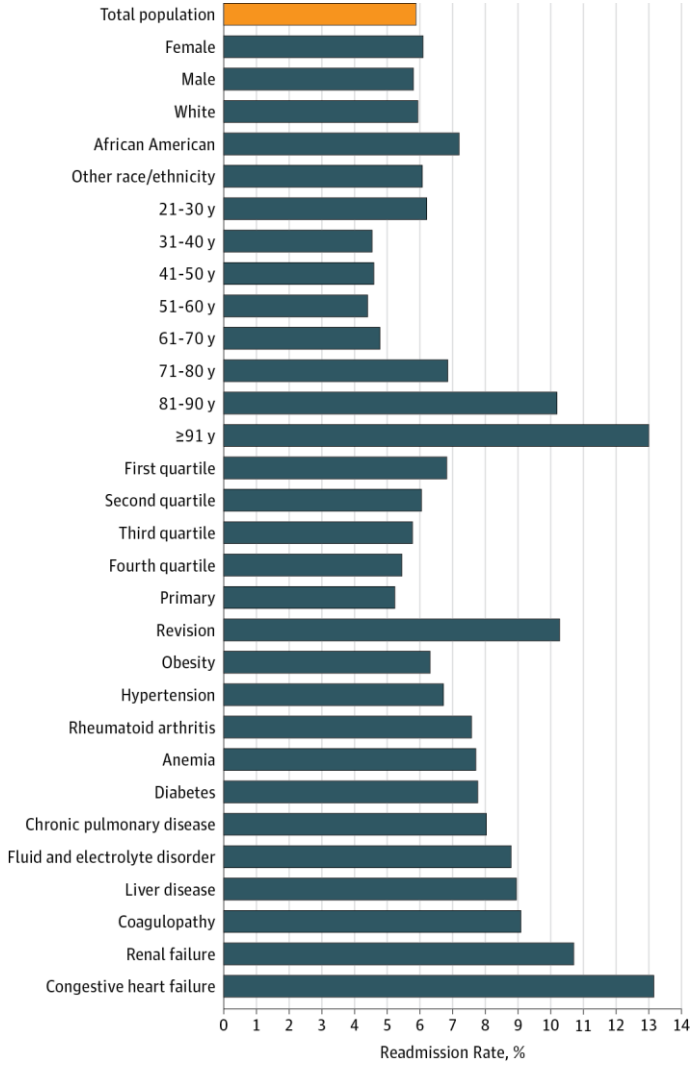
Brianna L. Siracuse, BS; Ronald Chamberlain, MD, MPA

Readmission After Total Hip Replacement Risk (RATHRR) is associated with readmission rate about 80% of the time.

- Hip replacement is 6th most common surgical procedure
- 4-11% published readmission rates
- Mean cost of readmissions: $10,000-$19,000
- Most common reasons for readmission:
  - Prosthesis complications (12.9%)
  - Surgical site infections (12.8%)

Pre-surgical readmission risk evaluation may reduce readmissions and related costs.

https://jamanetwork.com/journals/jamasurgery/fullarticle/2499491



Surgical Risk Is Not Linear: Derivation and Validation of a Novel, User-friendly, and Machine-learning-based Predictive OpTimal Trees in Emergency Surgery Risk (POTTER) Calculator

Bertsimas D, Dunn J, Velmahos GC, Kaafarani HMA.

- Collaborative research by MIT and MGH
- Study based on 382,960 Emergency Surgery (ES) patients
- Most risk calculators assume variables are linear and additive
- Used AI - Some variables gain or lose significance in presence or absence of other variables

https://www.ncbi.nlm.nih.gov/pubmed/30124479

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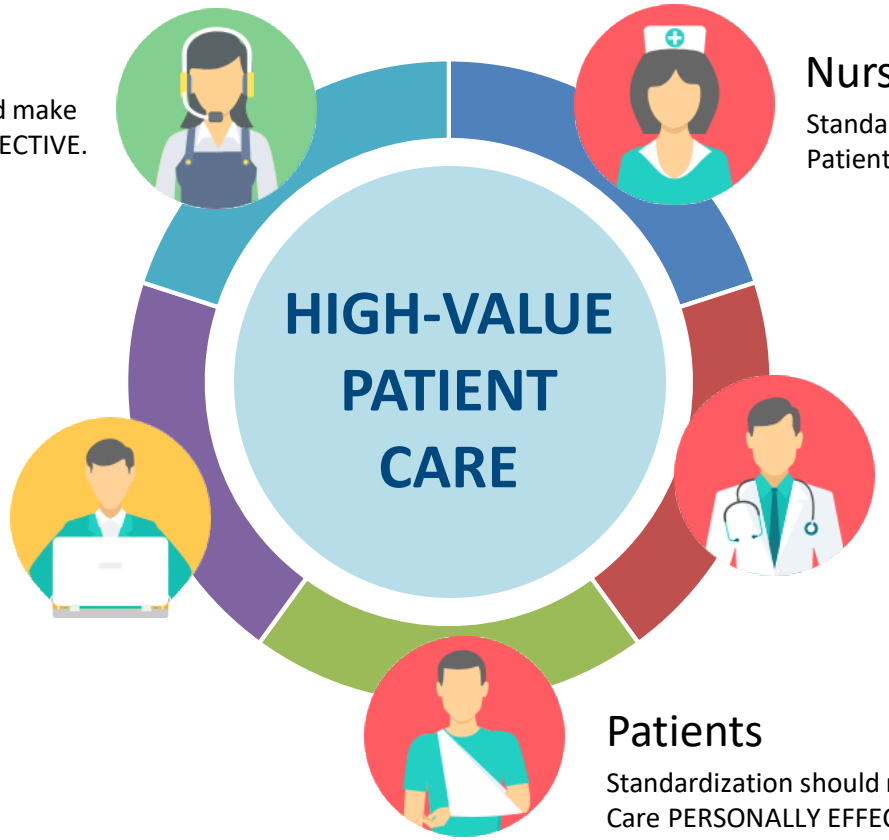
at a Time...Every Day.®

Clinical Practice Reference for Perioperative Optimization of the Surgical Patient

High-Value Patient Care can only result from unifying key stakeholders, supporting them well, and surrounding them with effective clinical partners.



Payors

Standardization should make Patient Care COST-EFFECTIVE.

Nurses

Standardization should make Patient Care CONSISTENT.

Healthcare Execs

Standardization should make Patient Care PREDICTABLE.

Physicians

Standardization should make Patient Care EVIDENCE-BASED.

Patients

Standardization should make Patient Care PERSONALLY EFFECTIVE.