NSQIP Overview

- ACS NSQIP is a data-driven, risk-adjusted, outcomes-based surgical quality improvement program.

- Benefits of participation include:
  - Identifying quality improvement targets
  - Improving patient care and outcomes
  - Decreasing institutional healthcare costs

NSQIP History

- Originated in the Veterans Health Administration
- Instigated by what appeared to be high death rate
  - Congress mandated an investigation & analysis
  - Analysis showed death rate r/t high risk pts
- Core of NSQIP is in risk adjusted outcomes
  - Levels the playing field when comparing hospitals
  - Hospital outcomes become comparable

- In 2001, ACS received funding to implement NSQIP pilot program in private sector hospitals.
  - Mostly research hospitals with 500+ beds
- In 2004, ACS expanded the program to additional private sector hospitals.
  - Non-research profit and non-profits with 200+ beds
- In 2011, ACS expanded the program to small and rural hospitals
  - 100 beds and less
Data Collection

Preoperative data
- Demographics - 6 variables
- 44 clinical variables and 13 laboratory variables

Intraoperative data
- Surgical Profile - 11 variables
- 16 clinical variables and 3 complications

Postoperative data
- 30-day outcomes (inpatient and outpatient)
- 20 complications, 12 laboratory variables, and 10 discharge variables

Two Base NSQIP Programs

1. General and vascular surgeries
2. Multispecialty:
   - 8 subspecialty surgeries
     1. Gynecologic
     2. Neurologic
     3. Orthopedic
     4. Otolaryngologic
     5. Plastic
     6. Cardiac
     7. Thoracic
     8. Urologic

NSQIP Program Overview
- Outcomes assessed at 30 days after index surgery (inpatient or outpatient)
- Highly standardized and validated data definitions
- Intense Surgical Clinical Reviewer training, continuing education, support & IRR
- 160 total variables collected
- Reduced from 195 in 2011

Complications/Outcomes
- Mortality
- Morbidity
- Cardiac
- DVT or PE
- Pneumonia
- Sepsis or Shock
- UTI
- Renal Failure
- CVA
- Intraop MI or arrest
- Wound
  - Superficial SSI
  - Deep SSI
  - Organ space SSI
  - Disruption
- Ventilator
  - >48hrs
  - Re-intubation
- RBC transfusions
  - Intra+Post-op
KP NSQIP Programs

- General & Vascular
  - Higher volume general & vascular MCs
  - Specialty centers

NSQIP Programs

- General & Vascular
  - Higher volume general & vascular MCs
  - Specialty centers
- Multispecialty
  - Hospitals with broad range of surgeries
  - Tend to be non-specialty MCs
    • Exceptions: RWC & neuro, SSF & bariatric
- Targeted Procedure
  - Focus on specialties and procedures
  - Vascular is the first procedure targeted group
**Interpretation of Results**

**Over-Time Performance**
- Represents the hospital’s previous O/E or OR ratios from the 10 most recent semi-annual reports.

**Vascular Surgery**

**Cardiac Complications**
- Observed Rate: 0.92%
- Pred. Obs. Rate: 1.70%
- Expected Rate: 2.08%
- Odds Ratio: 0.81
- Status: Non-Outlier

**NSQIP Targeted Procedures**
- **Goal:**
  - Facilitate specialties to dig deeper into specific procedures thru additional pre & post op variables
- **Procedure Targeted Program**
  - Base program can be either:
    - General & vascular or
    - Multispecialty
- **Facilitates MCs keeping:**
  - Existing case mix
  - Comparable positioning to other “like” MCs

**Vascular Targeted Procedures**
- **Vascular is first Targeted program**
  - Began with July 1, 2011 surgeries
- **Vascular procedure groups:**
  - CEAs
  - AAAs
  - Aortoiliac
  - Lower limb embolectomies
  - Slightly different variables based on:
    - Endo versus open
- **15 to 20 extra variables per procedure**
**Additional Variable Groups**

- Symptomatology or indication for surgery
- Procedure specifics
  - Beyond CPT description
- High risk factors
  - Anatomic
  - Physiological
- Pre-procedure meds
- Hemodynamics appropriate to procedure:
  - ABI
  - Stenosis level
  - Pedal pulses
- Post-op occurrences beyond NSQIP basic
  - 10 extra

**Procedure specifics**

- Carotid
  - Endo: stent types & CPDs
  - Open: shunts, angioplasty & eversion
- Aortoiliac
  - Endo: stents
  - Open: bypass location and type
- Lower Extremities
  - Endo: angioplasty/stenting/atherectomy
  - Open: endarterectomy and/or bypass, type, location, vein vs prosthetic
- AAA
  - Endo: access, stent distal & proximal extent, conversion, main body device
  - Open: approach, stent distal & proximal extent, clamp locations

**Symptomatology or Indications**

- Carotid
  - Asymptomatic, stroke, TIA, Amaurosis fugax
- Aortoiliac & Lower extremities
  - Asymptomatic, claudication, LL ischemia
- AAA
  - Diameter, embolization, thrombosis, dissection, rupture

**High Risk factors**

- Over 80yo
- Physiological
  - NYHA CHF III/IV
  - LVEF <30%
  - Unstable angina
  - Recent MI
  - ESRD
- Anatomic
  - Occlusion
  - Stenosis
  - Previous vascular surgeries
Pre-procedure Medications
- Statins
- Aspirin/Clopidogrel
- Beta Blockers

Hemodynamics
- Appropriate to procedure
  - ABI
  - Stenosis level
  - Pedal pulses

Post-op Occurrences
- Beyond NSQIP basic outcome tracking
  - Ischemia
  - Rupture
  - Loss of patency
  - Failure
  - Stenosis
  - ICU stay
  - Major re-intervention or revision
  - Bleeding

Questions?
NSQIP Expanded Variables for Vascular Surgery

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