Northern Westchester Hospital
Medical Affairs

Subject: PERIOPERATIVE EVALUATION OF ADULTS

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I. **PURPOSE:**

To ensure that patients undergoing surgical procedures at Northern Westchester Hospital have an appropriate preoperative evaluation and risk stratification to allow optimization of preoperative treatment of chronic diseases, thereby minimizing the risk of perioperative complications

II **POLICY:**

A. **Admission History and Physical Examination**

1. Patients undergoing inpatient or ambulatory surgical procedures at NWH must have a preoperative history and physical examination by a physician, dentist, or podiatrist, or a nurse practitioner or physician assistant under the direction and supervision of a physician, licensed to practice in the State of New York, within thirty (30) days before the procedure. The purpose of this history and physical examination is to determine whether there is anything in the patient's overall condition that would affect the patient's plan of care. *Exception: patients undergoing low risk ambulatory procedures without sedation may have a focused history related to their procedure and a review of their allergies and medications.*
2. The surgeon performing the procedure, if not completing the admission history and physical examination, may include a focused history and physical examination reviewing the indication for the procedure and patient's plan of care.
3. The history and physical examination must be updated within 24 hours prior to the procedure, in order to identify any changes in condition that may have occurred since the initial history and physical examination. This update may be performed by the anesthesiologist administering the sedation, the surgeon, or any other practitioner on our Medical Staff credentialed to perform such an examination.

B. **Preoperative Consultation**

1. Any patient undergoing a medium or high risk procedure (see appendix) who has two or more of the following clinical risk factors must have a preoperative evaluation by an internist or cardiologist:
   a) Hypertension
   b) Diabetes
   c) Obesity
   d) Smoking
   e) Chronic kidney disease
2. The preoperative evaluation must include completion of the NWH Preoperative Evaluation form, or at a minimum include the following information:
   a) History or symptoms of any cardiovascular disease and related test results
   b) History or symptoms of any pulmonary disease and related test results
   c) Patient's functional capacity
   d) History of bleeding abnormalities, prolonged bleeding, or hypercoagulability
   e) History of any adverse reactions to any medications or anesthesia

f) A complete and accurate medication list, including over the counter medications

3. If NWH does not receive the above information at least 72 hours prior to the procedure the surgical staff will arrange for a preoperative evaluation by an NWH IM hospitalist.

C. Preoperative Cardiac Risk Assessment

1. Any patient undergoing a medium or high risk procedure who has any of the following cardiovascular conditions must have a preoperative evaluation by an internist or cardiologist:
   a) Coronary artery disease (angina or history of stent or CABG)
   b) History of myocardial infarction
   c) Congestive heart failure
   d) History of significant arrhythmia (high-grade or Mobitz II AV block, third degree AV block, symptomatic ventricular arrhythmias, supraventricular arrhythmias with uncontrolled ventricular rate, symptomatic bradycardia, newly recognized ventricular tachycardia)
   e) History of severe valvular heart disease (severe aortic stenosis or symptomatic mitral stenosis)
   f) History of stroke or transient ischemic attack

   Note: The ACA/AHA 2009 guidelines suggest that patients with active cardiac conditions* who are undergoing high risk procedures (vascular or prolonged with anticipated fluid shifts) have non-invasive cardiac testing prior to surgery.

2. The following are considered active cardiac conditions:
   1. Unstable coronary syndromes: unstable or severe angina or MI within 30 days
   2. Decompensated heart failure: class IV, worsening, or new onset
   3. Significant arrhythmias: as listed above
   4. Severe valvular disease: aortic stenosis with mean pressure gradient > 40, AV area < 1.0 cm^2, or symptomatic OR mitral stenosis with symptoms of progressive DOE, exertional pre-syncope, or heart failure

3. In the case of patients who are on dual antiplatelet therapy (e.g. aspirin and clopidogrel) for vascular disease, there should be a discussion between the surgeon and the internist or cardiologist to determine a clear plan for the extent and timing of any discontinuation of antiplatelet therapy.

4. In the case of patients who are on anticoagulation therapy, there should be a discussion between the surgeon and the internist or cardiologist to determine a plan regarding discontinuation of anticoagulation therapy and the need for any "bridging" therapy with parenteral anticoagulation.

5. If NWH does not receive the above information at least 72 hours prior to the procedure, the surgical staff will arrange for a preoperative evaluation by an NWH IM hospitalist.

6. Patients with the above cardiovascular conditions shall be monitored and care for in the surgical step down unit for at least the first 24 hours after the procedure with consultation by an internist or cardiologist.

7. If a patient with any of the above cardiovascular conditions is to be cared for outside of the surgical step down unit, the internal medicine or cardiology consultant must evaluate the patient in the PACU. If the internal medicine or cardiology consultant, the anesthesiologist, and the surgeon agree that the patient is stable and can be safely cared for outside of the surgical step down unit, the patient may be transferred from the PACU to the surgical unit.

D. Preoperative Laboratory Testing

1. Preoperative laboratory testing should be directed by the patient's history and physical examination and the risk of the planned surgical procedure.
2. All laboratory results must be submitted to NWH at least 72 hours prior the planned surgical procedure.
3. NWH requires the following diagnosis-related preoperative testing, in addition to any patient-specific testing requested by the surgeon and/or internist caring for the patient.

TEST	CONDITION	PERFORMED WITHIN:
CBC	• History of Bleeding Disorder, Anemia, or Renal Disease • Active Malignancy or Currently receiving Chemotherapy • Undergoing body contouring post bariatric (weight loss)	1 Month

	surgery	
BMP	• Use of Diuretics, Digoxin, Lithium, or Steroids • History of Renal Disease or Severe Hepatic Disease • Undergoing Craniotomy, Abdominal Aortic Aneurysm, or body contouring post bariatric surgery	1 Month
ECG	**All men age 55 and over and women age 60 and over or any person with any one of the following medical conditions:** • History of MI, CAD, or CHF • History of Atrial Fibrillation or other dysrhythmias • History of Hypertension, DM, or Peripheral Vascular Disease • History of COPD or Central Nervous System Disease • Use of Cardiotoxic Meds: Digoxin, Chemo, or Tricyclics • Undergoing Vascular Surgery • Undergoing body contouring post bariatric (weight loss) surgery	Asymptomatic: 12 Months Symptomatic Diabetes Dysrhythmias Digoxin: 1 Month
CXR	• History of MI, CAD, CHF, or COPD • Undergoing Thoracic Surgery	Asymptomatic: 12 Months Symptomatic: 1 Month
PT/PTT	• Moderate or Severe Hepatic Disease • History of excessive bleeding	1 Month

E. Blood Type and Screen

1. Procedure-based requirement for Blood Type and Screen

a. Moderate Risk for Intraoperative Bleeding – require type and screen to be sent to laboratory and completed PRIOR to starting the procedure

I. Patients should have blood drawn at a NWH testing site within 72 hours prior to the procedure to ensure that blood is adequately evaluated prior to the start of the procedure

II. Patients who are unable to have blood drawn at a NWH testing site within 72 hours prior to the procedure due to geographic distance or transportation difficulties may have a type and screen done during their preoperative evaluation by their primary care physician. In such cases NWH Surgical Services will review the type and screen result:

- If preoperative type and screen shows POSITIVE antibodies, NWH Surgical Services will contact patients and arrange for them to come to an NWH testing site 1-2 days prior to their procedure for a blood type & screen so that the NWH blood bank can obtain the appropriate cross matched blood in preparation for the procedure
- Patients who are NEGATIVE for blood antibodies on their preoperative testing screen (90% of patients) may have their NWH blood type & screen test when they arrive at NWH on the morning of their procedure as part of their pre-surgical care

*Note – NWH Lab will notify ASC and OR of patients with negative antibodies, but who have positive antibody history on record at NWH. These cases will not go into the OR without cross matching completed.

b. Moderate Risk for Postoperative Bleeding – require type and screen to be sent to laboratory, but not necessary to be completed prior to starting the procedure

I. Patients may have their NWH blood type & screen test when they arrive at NWH on the morning of their procedure as part of their pre-surgical care

c. Low Risk for Bleeding – DO NOT require preoperative type and screen

F. Perioperative Management of Post-Bariatric patients undergoing Body Contouring Surgery

A. Preoperative data should include any cardiovascular and/or pulmonary evaluation done prior to the bariatric surgery

B. Cardiac or pulmonary evaluation should be updated based upon ASA guidelines and cardiac risk assessment

C. Anesthesiologist should consider the following intraoperative management guidelines:

a) Insertion of two (2) intravenous lines
b) Arterial line and central line at the discretion of the anesthesiologist
c) Monitoring of vital signs, urine output, and blood loss by monitoring lap pads, irrigation fluids, routinely
d) Periodic intraoperative monitoring of hemoglobin as indicated by changes in vital signs, perceived excess blood loss, or routine practice.
e) Transfusion if evidence of hemodynamic need

G. Management of patients undergoing Vascular Interventional Radiology Procedures

1. Physicians referring patients to an interventional radiologist for arterial procedures, procedures involving the chest cavity, or procedures requiring moderate sedation must complete the Vascular and Interventional Procedure Referral Form

2. For patients who are on antiplatelet agents or anticoagulants, who have active or unstable cardiac conditions, or who are ASA Class IV, the interventional radiologist will have a discussion with an internist, cardiologist, or anesthesiologist prior to performing the procedure

Attachments: See Appendix

References:

CMS Hospital Conditions of Participation and Interpretive Guidelines 482.22(c)(5) (10/17/2008)
ACA/AHA Guidelines for Perioperative Cardiac Evaluation in non-Cardiac Surgery (2009)
AHA Guidelines for the Prevention of Bacterial Endocarditis in Adults (2008)
ACA/AHA Guidelines for Perioperative Use of Betablockers in non-Cardiac Surgery (2009)
Revised Cardiac Risk Index (RCRI), Lee, 1999; Grayburn & Hillis, 2003

APPROVALS:

OR Committee – 4/9/15
Medical Board - 2/2011 ; 6/2012, 5/4/2015

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APPENDIX

RISK STRATEFICATION BY PROCEDURE

("cardiac risk" = combined cardiac death + non-fatal MI)

High Risk (cardiac risk >5%)	Intermediate Risk (<5%)	Low Risk (<1%)
Aortic or other major vascular	Carotid endarterectomy	Endoscopy
Peripheral vascular	Head & neck	Superficial procedures
	Intraperitoneal & intrathoracic	Cataract surgery
Prolonged procedure w/ anticipated fluid shifts/blood loss	Orthopedic surgery (major)	Breast surgery
Emergent, major surgery (esp. in elderly)	Prostate surgery	Ambulatory

CARDIOVASCULAR RISK INDEX

Risk Factors

- ☐ High risk surgery:
  - Intrathoracic
  - Intraperitoneal
  - Suprainguinal vascular
- ☐ History of ischemic heart disease:
  - History of MI or angina
  - Use of sublingual nitroglycerin
  - Positive stress test
  - Q waves on ECG
  - s/p CABG or PCI AND symptomatic
- ☐ History of congestive heart failure
- ☐ History of cerebrovascular disease (stroke/TIA)
- ☐ Preoperative insulin use for diabetes
- ☐ Preoperative chronic kidney disease
  (serum Cr ≥ 2.0 mg/dl)

Revised Cardiac Risk Index (RCRI):
0 risks = RCRI Class 1
1 risk = RCRI Class 2
2 risks = RCRI Class 3
≥ 3 risks = RCRI Class 4

β-blockers to maintain heart rate 60-65 recommended for:

- **RCRI Class 4**
- **Patients already on β-blockers for other indications**

β-blocker contraindications:

- Bradycardia (heart rate < 50 bpm)
- Low blood pressure (SBP < 100 mmHG)
- High-grade AV block
- Shock or heart failure on admission
- Intolerance/allergy to β-blockers

Use caution with history of asthma or COPD

AHA GUIDELINES FOR THE PREVENTION OF BACTERIAL ENDOCARDITIS IN ADULTS (2008)

Antibiotic prophylaxis to prevent bacterial endocarditis is only recommended for the following procedures:

- Dental procedures that involve manipulation of either gingival tissue or the periapical region of teeth or perforation of the oral mucosa
- Procedures that involve incision of the respiratory tract mucosa, such as tonsillectomy and adenoidectomy

Antibiotic prophylaxis to prevent bacterial endocarditis is only recommended for the following patients:

1. Patients with prosthetic cardiac valves or with prosthetic material used for cardiac valve repair
2. Patients with a history of infective endocarditis
3. Patients with unrepaired cyanotic congenital heart defects, including palliative shunts and conduits
4. Patients with completely repaired congenital heart defects, repaired with prosthetic material or device (whether placed by surgery or catheter intervention), during the first 6 months following the procedure
5. Patients with repaired congenital heart defects with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device
6. Cardiac transplant recipients with valve regurgitation due to a structurally abnormal valve

	Oral	**Parenteral**
Dental and Upper Respiratory Procedures	Amoxicillin 2 grams one hour prior to procedure	Ampicillin 2 grams IM or IV within 30 minutes before procedure
	Penicillin allergic: Clindamycin 600 mg OR Azithromycin 500 mg OR Cephalexin 2 g one hour prior to procedure	*Penicillin allergic:* Clindamycin 600 mg IV OR Cefazolin 1 g IM or IV within 30 minutes before procedure

- ***Antibiotic prophylaxis to prevent bacterial endocarditis is no longer recommended for any genitourinary or gastrointestinal tract procedure***

ASA CLASSIFICATION

I Normally healthy
II Mild systemic disease
III Systemic disease that is not incapacitating
IV Incapacitating systemic disease that is a constant threat to life

ASA GUIDELINES ON PREOPERATIVE FASTING FOR ELECTIVE SURGERY with GENERAL, REGIONAL, or SEDATION ANESTHESIA

- No clear liquids (water, fruit juice without pulp, carbonated beverages, clear tea, black coffee, broth, and popsicles) for at least two hours prior to surgery
- No solid food or human milk for at least six hours prior to surgery
- No fried, fatty foods, or meat for at least eight hours prior to surgery, since these foods prolong gastric emptying time
- Those with significant GERD should be NPO for 6 hours; gastric acid blockers & GI stimulants have not been shown to reduce aspiration risk and should not be used for this purpose

The following procedures require a type and screen and are classified into two categories.

***Moderate* risk of bleeding intra op-must wait for T&S to be completed**

Neurosurgery
Lumbar Laminectomy greater than two levels
Open Lumbar Fusion for one level or greater
Direct Lateral/MIS Lumbar three levels or greater

Gynecology
All Robotic procedures
All hysterectomies (laparoscopic, vaginal, and open)
All myomectomies (laparoscopic and open)
All laparotomies
D&E
Sacrocolpopexy
Cesarean sections

Orthopedics
Hip fracture
Total hip replacement
Femur fracture
Pelvic fracture
Revision total hip
Revision total knee

General Surgery
Splenectomies (open, laparoscopic, robotic)
Exploratory laparotomies

Urology
All Robotic cases
Nephrectomies
Adrenalectomies (laparoscopic)
Open cystectomies
All Prostatectomies
Percutaneous nephrolothitripsy

Aesthetics
Panniculectomy

Cardiovascular
Carotid endarterectomy
AAA (open or Stent)
Fem/Pop bypass
Thoracotomy/Lobectomy
Radical neck dissection
ADD to list for transfusion requirements
Femoral endarterectomy
Femoral-distal bypass, any leg bypass

Other
Any case requesting cell saver

Moderate risk of bleeding post-op may go into OR before T&S is complete

Gynecology
Ectopic pregnancies
Suction D&C
All other laparoscopy

Orthopedic
Total knee replacement
Total ankle replacement
Total shoulder replacement
Total elbow replacement
Tibia fracture
Proximal humerus fracture

General

All Robotic cases (except cholecystectomy and hernia)
Gastrectomies
Colon resection (open and laparoscopic)
Gastric bypass/sleeve

Cardiovascular
Femoral/popliteal embolectomy
Brachial artery embolectomy

The following procedures do not require a T&S

Neurosurgery
Craniotomy
Suboccipital Craniotomy
Direct Lateral one or two level
Minimally Invasive Lumbar Fusion one or two level
Cervical Corpectomy

Orthopedic
Ankle Fracture
Wrist Fracture
Arthroscopic cases
Hand cases

Cardiovascular
AV fistula/AV graft
Peripheral lower extremity angiogram/angioplasty/atherectomy/stent
IVC filter/Retrieval
Central venogram, extremity venogram

Aesthetics/breast
DIEP, TRAM, and Latissimus flaps