UCI HOSPITALIST PROGRAM

This worksheet is merely a guideline for the physician who understands preop evaluation well, and suggested actions should be individualized to meet risk/benefit for each patient, including adjusting doses for age/renal excretion. *This worksheet is **not** intended to serve as a chart note.*

The left side of the page includes system based assessments (cardiac, pulmonary, etc.) and the corresponding interventions are on the right side of page. Much like a traffic light, each section has red for stop, yellow for proceed to next step, and green to "go" ahead with surgery. If the assessment is "red", the appropriate interventions should be selected from the red options. If the assessment is "green," the appropriate interventions should be selected from the green options. The guideline management should be converted to very specific orders based on your own clinical judgment.

Here is what we decided at last night's Hospitalist meeting regarding inpatient preop evaluations:

1) The primary Medicine Team will complete the Preop assessment using the attached worksheet and document a note in the chart, consulting Team H for an opinion when necessary.
2) The primary Medicine Team will use their own discretion to determine if a patient undergoing a minor procedure needs this level of formal preop evaluation, but should consider looking at the Hematological section.
3) The primary Medicine Team will initiate a consult to Team H whenever a patient will transfer to surgery with anticipated need for ongoing perioperative medical management. Primary Medicine Team will handoff appropriate synopsis & active issues for patient to Team H.
4) Team H will provide a follow-up level initial evaluation for patient previously on primary Medicine Team or previously seen in our Preop Clinic within 3 years.

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=stop =next step =proceed to surgery +/- medical optimization

CARDIAC:

Prior cardiac workup: LV EF= _____

Y N

- Chest pain or suspected angina?
- CABG? Date:
- PCI? Date: _____ Bare metal stent Drug eluting stent
- Orthopnea, PND, leg edema or suspected HF?
- Palpitations, dizziness, syncope or suspected arrhythmia?
- Atrial fibrillation? CHADS score= _____
- Pacemaker? Type: _____
- History of prosthetic heart valve or endocarditis?
- BP chronically >180/100?

ACC-AHA Risk Assessment

RCRI Criteria = 0 1 2 3 4 5 6

- proposed intra-abdominal surgery or high risk surgery
- known CAD (MI, Q waves on EKG, abnormal stress test/cath, angina)
- compensated HF: Hx orthopnea, edema
- stroke (ischemic CVA or TIA)
- diabetes requiring insulin
- renal insufficiency with creatinine >2 mg/dL

- Emergent surgery?
- Major cardiac contraindications?
  - Recent MI (< 3-6 months)
  - Class III-IV angina
  - Decompensated HF (<1 week)
  - Critical AS (AV area<1 cm2, AV grad>60), MS
  - Significant arrhythmia (hemodynamically unstable high grade AV block, high vent rate, etc.)
- Minor surgery? (herniorrhaphy, ophtho/dental/breast/superficial/derm, EGD, cysto)
- Functional capacity ≥4 METs?
  1. ADLs: dress, eat
  2. walk around house, get out of bed
  3. walk 2 blocks, light housework, walk downstairs
  4. vacuum, scrub, light yard work, carry 10 lbs.
  5. climb 1 floor stairs, walk >4 blocks, dance
  6. mow lawn, carry >20 lbs, >9 holes golf
  7. heavy yard work, carry >40 lbs, walk 1 mile or uphill
  8. 30 mins aerobic exercise, sports, swim, jog
- Coronary intervention (PCI/CABG) <5y w/o new symptoms?
- Favorable cardiac cath or non-invasive stress test <2y?
- RCRI= 0-1?
- RCRI= 1-2 or vascular surgery?
- RCRI ≥3 or vascular surgery?

IF MANAGEMENT WILL CHANGE, THEN RECOMMEND:

- Cardiology consult if major surgery w/high cardiac risk
- Non-invasive stress test or CT coronary angiogram
- Echocardiogram if suspecting critical AS/MS clinically
- CXR, BNP, and/or Echo for suspected undiagnosed HF
- Optimize decompensated HF w/Beta-blocker, ACE/ARB and diuretics PRN (hydralazine & nitrate alternate to ACE/ARB)
- EKG, telemetry or Holter to evaluate suspected arrhythmia
- Optimize significant arrhythmia:
- CK and/or troponin @ 48h & 72h postop for high cardiac risk
- Minimize perioperative fluids & use hypotonic fluid (if possible)
- Proceed without coronary intervention due to surgical urgency and medically optimize:
- Treat BP until clinically acceptable range
- Endocarditis prophylaxis if mucocutaneous oral/UGI surgery AND prosthetic valve/Hx endocarditis/congenital heart dz
  - No PCN Allergy: Ampicillin 2g IVPB 30 min preop
  - PCN Allergy: Clindamycin 600mg IVPB 30 min preop

- **BETA-BLOCKER** (exclude for minor surgery or if contraindicated)
- Exclude: allergy, HR<55, SBP<100, high grade AV block, other
  - Primary indication (CAD, HF) or already on Beta-blocker
  - Major surgery and RCRI ≥3
  - HR control
  - Adrenergically mediated HTN control
- **STATIN** (exclude if contraindicated)
  - Major surgery and RCRI ≥2
  - Already on statin or major surgery & RCRI ≥1
- **PLAVIX & ASPIRIN** (exclude if surgery high bleeding risk)
  - PCI w/o stent <14d
  - Bare metal stent <30-90 d
  - Drug-eluting stent <1y
- **ASPIRIN** 81mg/d (exclude if surgery high bleeding risk)
  - High cardiac risk & major surgery
  - Bridge for atrial fibrillation w/CHADS ≥3

- Medically optimized (with above) and
  - **LOW** risk (<2% CV events)
    - Minor procedure without major cardiac contraindications
    - PCI/CABG<5y w/o new Sx
    - Favorable cath/non-invasive stress test <2y w/o new Sx
    - RCRI 0-1
  - **INTERMEDIATE** risk (2-7% CV events)
    - RCRI 1-2
  - **HIGH** risk (>9% CV events)
    - Major cardiac contraindication
    - RCRI ≥3

PULMONARY:

Y N

- SOB, DOE, acute cough, abnormal lung exam, or hypoxemia?
- Surgery high risk for perioperative pulmonary complications? [thoracic, AAA , major vascular, intracranial, ENT, upper abdominal surgery]
- Major patient-specific pulmonary risk factors?
  - Acute pulmonary embolism (<4 weeks)
  - Severe pulmonary HTN [PA>70 mm Hg]
  - Acute respiratory symptoms with chronic lung disease
  - Steroid or O2-dependent lung dz
  - Recent smoker (quit <8 weeks)
- Other patient-specific pulmonary risk factors?
  - Age >60 years old
  - Hx heart failure (HF)
  - Albumin <3.5 mg/dL
  - ≤1 MET activity
  - COPD
  - OSA or (+) STOP BANG
  - Active smoker
  - Acute delirium

- CXR/CT Chest to evaluate un-Dx respiratory Sx or abnormal exam
- Bedside PFTs to evaluate undiagnosed suspected lung dz/SOB
- Treat exacerbated chronic lung dz w/Beta agonist inhaler/neb
- Treat exacerbated chronic lung dz w/Anticholinergic inhaler/neb
- Treat exacerbated chronic lung dz w/inhaled steroid
- Delay surgery (if possible) to treat exacerbated chronic lung dz
- Delay surgery (if possible) to treat pneumonia
- Delay surgery for high risk of periop pulmonary complications
- Perioperative incentive spirometry 10x/h
- Aspiration precautions and postop NGT suction for ileus, N/V
- CPAP
- Medically optimized (with above)

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INFECTION:

Y	N		
		Emergent or urgent surgery?	Blood, urine, sputum, and/or other (stool, CSF, etc) cultures
		Acute infection suspected (fever, leukocytosis, dysuria, etc.)?	For steroid, use Vitamin C 500 BID, Vitamin A 10K QOD, Zn 220/d
		Immunosuppressive Tx<2 wk (systemic steroid, DMARD, chemo)?	Delay surgery (if possible) for 2 wk off DMARD or chemoTx
		Weight loss <2 wk, fasting >3d, or malnourished?	Delay surgery (if possible) for 7d for enteral nutrition or TPN
			Delay surgery (if indicated) for 7-14d until acute infection resolved
			Medically optimized (with above)

ENDOCRINE:

Y	N		
		Emergent or urgent surgery?	Nonselective Beta-blocker (Propranolol) to treat hyperthyroid tachy
		Hyperthyroid with tachyarrhythmia or signs of thyroid storm?	Start PTU or Methimazole to treat hyperthyroidism
		Hypothyroid with TSH>30 or myxedema coma?	Start IV levothyroxine (0.75 mcg/Kg)/d until myxedema coma resolves
		Systemic steroid @≥20mg/d Prednisone equiv for >3 wk < past yr?	Delay surgery (if possible) until euthyroid
		DKA or hyperosmolar hyperglycemic non-ketotic syndrome?	Stress dose HC 25-100 mg IVPB, start preop, q8h, taper by half/d
		DM with Hgb A1c >7.5 or FBS >200?	Delay surgery until acidosis/hyperosmolar state resolves w/IV insulin
			Stop all oral DM meds & switch to basal-bolus insulin strategy below
			IVF with D5 @ ≥100 mL/h or D10 @ ≥30 mL/h while NPO
			Start basal Lantus (0.2-0.25 units/kg/d) and do not hold while NPO
			Start bolus short-acting insulin (0.2-0.25 units/kg/d)/freq, hold if NPO
			Use corrective insulin that is same type & frequency as bolus insulin; do not hold if NPO
			Medically optimized (with above)

LIVER:

Y	N		
		Platelet count <30,000 for minor surgery or <50,000 for major surgery?	Transfuse 1-2 units pooled Platelets until >30-50,000
			Transfuse FFP 2-4 units immediately prior to procedure
			Consider non-surgical options for Class C liver disease
			Delay surgery (if possible) to treat encephalopathy and/or ascites until bilirubin & coagulopathy improve
			Medically optimized (with above)

Childs-Pugh:

Points	Ascites	Encephalopathy	Bilirubin	Albumin	INR
1	None	None	<2 mg/dL	>3.5	<1.7
2	Mild-Mod	Stage I-II	2-3 mg/dL	2.8-3.5	1.7-2.3
3	Severe	Stage III-IV	>3 mg/dL	<2.8	>2.3

- 5 - 6 points = Class A with 2 year mortality < 15% and low surgical risk
- 7 - 9 points = Class B with 2 year mortality of 40% & moderate surgical risk
- 10-15 points = Class C with 2 year mortality >60% and high surgical risk

HEMATOLOGICAL:

	Surgical Bleeding Risk	Thrombosis Risk
High	CNS, vascular, major abdominal, spine, breast, prostate, urological surgery; endoscopic or angiographic deep tissue invasive Bx of vascular organ	MVR, THA, TKA, DES<1y, BM stent <90d, PCI<14d, atrial fib w/CHADS ≥3, DVT/PE<6m, intracardiac clot, EF<20%, active CA, hypercoag dz
Low	Shoulder, hip, knee surgery, gallbladder, uterus, cataract, superficial surgery; endoscopy or bronch +/- superficial Bx, diagnostic non-coronary angiogram	DES>1y, BM stent>90d, PCI>14d, DVT/PE>6m, CHADS<3, isolated CVA/TIA w/o A-fib, newer model AVR, no hypercoaguable risk factor

Y	N		
		High bleeding risk surgery?	IF RISK FACTORS ARE IDENTIFIED:
		Hx major bleeding with past surgery?	Check CBC if none in past 30d
		Hx mucocutaneous bleeding (epistaxis, GI bleed, menorrhaghia)?	Check PT/INR, PTT if none recently; additional w/u as indicated
		Easy bruising >2cm, easy bleeding?	Hold VTE PPx anticoagulant 24h preop & restart 24-72h postop
		Hx or FHx of coagulopathy?	Hold NSAIDs 1-4d preoperatively
		Platelets <80K for CNS surgery, <50K for major or <30K for minor surgery?	SEE CARDIAC SECTION FOR ANTIPLATELET USE
		Antiplatelet or anticoagulant use <7 days & emergent/urgent surgery?	If low bleeding risk surgery & high risk for thrombosis:
			Continue aspirin perioperatively @ 81mg/d
			Continue Coumadin perioperatively @ INR 2 - 2.5
			If high bleeding risk surgery & low risk for thrombosis (See CV risk)
			Hold aspirin 5-7d preop & restart within 3d postop if CV risk factor
			Hold Plavix 4-7d preop & restart within 3d postop if CV risk factor
			Hold Coumadin >5d preop and bridge w/LMWH or IV Heparin
			If high bleeding risk surgery & high risk for thrombosis (See CV risk)
			Continue aspirin @ 81mg/d & transfuse 1 unit Platelets preop
			Reverse coagulopathy with Protamine (for heparin), Vitamin K (for Coumadin), and/or FFP/Platelet transfusion
			Hold Coumadin and bridge w/LMWH or IV Heparin

DELIRIUM:

Y	N		
		Acute delirium, abnormal cognitive exam, or Hx perioperative delirium?	Treat infection, correct electrolyte disorders and hypoxia
		Hx EtOH abuse, dementia, chronic psychiatric illness, or polypharmacy?	Avoid antihistamine (Benadryl), anticholinergic, and BZD drugs
		Age >60 with acute infection, severe metabolic disorder, or hypoxia?	CIWA protocol & PRN Ativan if EtOH withdrawal risk
			Continue neuroleptic & psychiatric medications perioperatively
			Hold all non-essential medications (& PRNs) perioperatively

RENAL:

Renal failure, Stage ☐ I ☐ II ☐ III ☐ IV ☐ V ☐ on dialysis — Adjust medication doses for renal impairment

FINAL RECOMMENDATIONS:

Y	N		
		Medically optimized to proceed with surgery?	Recommend:

DISCLAIMER: *Individualize management based on patient's risk/benefit and adjust doses for age/renal clearance.* ***NOT CHART COPY.***