

Perioperative Cardiovascular Management

Preoperative risk stratification, cardiac testing, revascularization, medication management, and postoperative surveillance before noncardiac surgery.

2024 AHA/ACC/ACS/ASNC/HRS/SCA/SCCT/SCMR/SVM Perioperative CV Management Guideline Thompson et al. • JACC 2024;84(19):1869–1969

COR I • Recommended IIa • Reasonable IIb • May Consider III • No Benefit / Harm

1 Surgical Timing, Risk Categories & Revascularization Before NCS

TIMING	DEFINITION
Emergency	Immediate threat to life/limb; <2h for evaluation
Urgent	Threat to life/limb; ~2–24h for evaluation
Time-sensitive	Can delay up to 3mo for evaluation/management
Elective	Can delay for complete evaluation & optimization
Low risk	Combined surgical + patient MACE risk <1%
Elevated risk	Combined MACE risk ≥1% (intermediate/high); RCRI >1 traditionally used as threshold

I C-LD

ACS being considered for elective NCS — revascularization **and deferral of surgery** recommended to reduce perioperative events.

IIa C-LD

CDD with hemodynamically significant **left main stenosis ≥50%** planning elective NCS — revascularization + deferral of surgery reasonable.

III NB • B-R

Non–left main CAD — **routine** preoperative revascularization **not recommended** to reduce perioperative events.

2 Risk Stratification — RCRI, Frailty & Biomarkers

All patients undergoing elevated-risk NCS

REVISED CARDIAC RISK INDEX (1 PT EACH)

Ischemic heart disease
History of heart failure
Cerebrovascular disease
Insulin therapy for diabetes
Serum creatinine ≥2.0 mg/dL
High-risk (intraperitoneal/intrathoracic/aortic) surgery

FRAILITY & BIOMARKERS

IIa B-NR

Age ≥65y (or <64y + perceived frailty) undergoing elevated-risk NCS — validated frailty tool assessment can be useful to guide management.

IIa B-NR

Known CVD, age ≥65y, or age ≥45y + CVD symptoms + elevated-risk NCS — reasonable to measure **BNP/NT-proBNP** to supplement risk assessment.

IIb B-NR

Same population — measuring **cardiac troponin** before surgery may be reasonable to supplement risk assessment.

3 Preoperative Testing — ECG, LV Function & Stress

Testing should change management, not simply confirm known risk

IIa B-NR

Known CAD, arrhythmia, PAD, CVA, or CVD symptoms undergoing elevated-risk surgery — preoperative **12-lead ECG** reasonable to establish baseline.

III NB • B-NR

Asymptomatic, low-risk surgery — routine preoperative ECG **not recommended**.

I B-NR

New dyspnea, HF exam findings, or suspected new/worsening ventricular dysfunction — preoperative evaluation of **LV function** recommended.

III NB • B-NR

Asymptomatic, clinically stable — routine LV function assessment **not recommended**.

IIb B-NR

Elevated-risk NCS + poor/unknown functional capacity (<4 METs or DASI ≤34) + elevated MACE risk — **stress testing** may be considered if high-risk ischemia suspected.

III NB • B-R

Low risk, adequate functional capacity, or low-risk procedure — routine stress testing **not recommended**.

4 Chronic Cardiac Medications — Continue vs. Hold

STATINS

I B-NR

Continue statin therapy through surgery to reduce MACE.

I B-R

Statin-naïve + meets ASCVD criteria — perioperative **initiation** recommended for long-term use.

BETA BLOCKERS

I B-NR

On stable chronic dose — **continue** through the perioperative period.

IIb B-NR

New indication — may initiate **>7 days** preop to allow titration.

III Harm • B-R

No immediate need — should **not** be started on the day of surgery.

RAAS INHIBITORS

IIb B-R

Chronic use for hypertension + elevated-risk NCS — **omitting 24h** preop may limit intraoperative hypotension.

IIa C-E0

Chronic use for **HFrEF** — perioperative continuation is reasonable.

5 Antiplatelet Therapy & Timing of NCS After PCI

Multidisciplinary team + shared decision-making for all CAD patients (I, B-NR)

PCI HISTORY	MINIMUM DELAY TO ELECTIVE NCS
Balloon angioplasty, no stent	≥14 days (I, C-LD)
DES for ACS, antiplatelet interruption required	≥12 months ideally (I, B-NR)
DES for CCD, antiplatelet interruption required	≥6 months (IIa, B-NR)
DES, time-sensitive surgery, interruption required	May proceed ≥3 months if delay risk > MACE risk (IIb, B-NR)
BMS/DES ≤30 days old, interruption required	Potentially harmful — high stent thrombosis risk (III: Harm)

I B-R

Prior PCI undergoing NCS — **continue aspirin** (75–100mg) whenever possible to reduce cardiac events.

I B-NR

Time-sensitive NCS within 30d of BMS or <3mo of DES — **continue DAPT** unless bleeding risk outweighs stent-thrombosis benefit.

6 Oral Anticoagulation & Postop Troponin Surveillance

OAC BRIDGING

I B-NR

Elective NCS requiring OAC interruption — multidisciplinary, **time-based interruption** recommended.

IIa C-LD

High thrombotic risk + VKA interruption required — **bridging with parenteral heparin** can be effective.

III Harm • C-LD

Most elective NCS patients — routine periprocedural bridging **not recommended** (increased bleeding).

POSTOP TROPONIN & MINS

IIb B-NR

Known CVD, risk factors, or age ≥65y + elevated-risk NCS — measuring **cTn at 24 & 48h** postop may be reasonable to detect myocardial injury (MINS).

III NB • B-NR

Low-risk NCS — routine postop troponin screening **not indicated** without ischemic signs/symptoms.

I B-NR

Postop **STEMI** — consider GDMT ± ICA, balancing bleeding/thrombotic risk with presentation severity.

MINS: myocardial injury after NCS (~20% incidence) carries ~10% 30-day mortality even without ischemic symptoms — 80–90% are asymptomatic. Outpatient risk-factor optimization is reasonable (IIa, B-NR); antithrombotic therapy may be considered to reduce thromboembolic events (IIb, C-LD).

Thompson A, Fleischmann KE, Smilowitz NR, et al. 2024 AHA/ACC/ACS/ASNC/HRS/SCA/SCCT/SCMR/SVM Guideline for Perioperative Cardiovascular Management for Noncardiac Surgery. J Am Coll Cardiol. 2024;84(19):1869–1969. For educational, point-of-care reference only. Not a substitute for clinical judgment or the full guideline text.

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