

thresholds (absolute^{2,4-6,10,20} or relative^{4,25}), and frequency of measurement²⁶ to guide care have not been established.²⁷ In addition to baseline BP, an assessment of total cardiovascular risk, age, clinical comorbidities, surgery type, anesthetic approach, and short-term risk of complications should be considered when individualizing perioperative BP management.

Recommendation-Specific Supportive Text

1. Uncontrolled hypertension is associated with increased perioperative complications. In a retrospective analysis of 251,000 adults undergoing elective NCS from the UK Clinical Practice Research Datalink, preoperative DBP >90 mm Hg was associated with increased 30-day postoperative mortality.²¹ Accordingly, ongoing treatment of chronic hypertension is recommended in the perioperative period. If hypertensive patients are unable to take oral medications, it is reasonable to use intravenous medications to control BP. Tight BP control mitigates long-term cardiovascular risk, but this strategy may not be appropriate for all patients in the perioperative period. Whereas maintaining an SBP >90 mm Hg may be an acceptable target for younger adults,²⁰ a higher target may be preferred in older adults, those with chronic hypertension, or both.²¹ The decision whether to hold or continue antihypertensive medications may be specific to drug class. Certain medications (eg, beta blockers, clonidine) may be associated with rebound hypertension if discontinued abruptly,²⁸ whereas others have been associated with increased risk of intraoperative hypotension when continued (eg, angiotensin-converting enzyme inhibitors [ACEi], angiotensin-receptor blockers [ARBs]).^{29,30} Refer to [Sections 7.2 through 7.4](#) for further guidance on specific classes of antihypertensive drugs.
2. In patients with untreated or uncontrolled hypertension, induction of anesthesia can trigger sympathetic activity, resulting in labile BP and heart rate.³¹ In a systematic review and meta-analysis of 30 observational studies, a preoperative diagnosis of hypertension was associated with a 35% increase in cardiovascular complications.² A single-center retrospective analysis of 58,276 patients undergoing NCS identified an association between preinduction SBP >160 mm Hg and a composite outcome (cardiac, neurological, or renal complication or in-hospital mortality) that was only significant in patients (n=10,512) with ≥1 components of the RCRI (eg, CAD, congestive HF, cerebrovascular accident, baseline serum creatinine >2.0 mg/dL, or preoperative insulin treatment).¹ However, an elevated BP on the day of surgery may represent a situational ("white coat

hypertension") response.³² Therefore, referring to patients' baseline ambulatory BP is recommended to guide management. In the absence of RCRI components,¹ there is little evidence for increased risk of perioperative complications in patients with preoperative BP of <180/110 mm Hg² or at any preinduction BP.

3. Intraoperative hypotension is associated with postoperative myocardial injury, acute kidney injury, and mortality.^{4-6,8,23} The harm threshold in observational analyses appears to be roughly a MAP <65 mm Hg or an SBP <90 mm Hg maintained for about 15 minutes.^{4,33} However, the results of 3 key trials are challenging to interpret. The multicenter, randomized INPRESS (Intraoperative Noradrenaline to Control Arterial Pressure) trial studied 298 high-risk patients and reported a roughly 25% relative risk reduction if SBP was maintained within 10% from baseline versus >80 mm Hg.²⁵ Another single-center trial³⁴ randomized 458 high-risk patients to a MAP ≥60 mm Hg versus MAP ≥75 mm Hg, and POISE-3 (Perioperative Ischemic Evaluation-3)⁹ randomized 7490 patients to a hypotension-avoidance (target MAP ≥80 mm Hg) versus hypertension-avoidance (target MAP ≥60 mm Hg) intraoperative strategy. Neither of these reported benefit from a strategy targeting higher BP. However, interpretation of the INPRESS study is complicated by lack of details reported with respect to extent of hypotension, especially in the potentially harmful MAP range of 55 to 70 mm Hg. Thus, while the expert opinion is to maintain intraoperative BP targets above MAP ≥60 to 65 or SBP >90 mm Hg, there is currently insufficient trial evidence to support higher BP targets.
4. In the POISE-2 (Perioperative Ischemic Evaluation-2) substudy, there was increased risk of the composite outcome of MI and death for increasing duration of SBP <90 mm Hg through postoperative day 4 (OR, 2.83 per 10-minute increase).⁶ However, anesthetic and hypotension management (eg, fluid boluses, vasoactive drugs, and mechanical support) was at the discretion of the clinical team and not controlled or reported. Closer monitoring of postoperative patients in the intensive care setting may allow for earlier recognition of hypotension.³⁵ A systematic review and meta-analysis on the perioperative use of vasoactive drugs (including inotropic agents and vasoconstrictors) to treat hypotension concluded that their use may reduce postoperative complications and reduce the length of stay in adult patients having major abdominal surgery.⁷
5. Postoperative hypertension can occur as a result of a variety of stimuli, including pain, inflammation, anxiety, hypoxia, volume overload, urinary retention, or as a result of withdrawal of chronic antihypertensive medications.³⁶ Hypertension can increase the risk for