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## Ideal Blood Pressure Management and our Specialty:

RE: Drummond, et al. “An Observational Study of the Influence of “White-coat Hypertension” on Day-of-Surgery Blood Pressure Determinations”

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To the Editor:

Drummond, et al., are to be congratulated for their important addition to the literature discussing the relationship between perioperative and ambulatory blood pressure measurements and the effects that the often high-stress environment of the presurgical period may have on that relationship.<sup>1</sup> I have four points to add to their excellent piece of clinical research:

1. They note in their discussion that their observations were similar to a small 18-person study that found a day of surgery bias in mean arterial pressure of +5mmHg over ambulatory measurements. These findings also agree, in outline, with our larger study of 2807 Veterans in which the day of surgery bias compared to primary care blood pressures was, on average, a modest +5.5mmHg systolic, and +1.5mmHg diastolic.<sup>2</sup>
2. Regarding the history of defining acceptable ranges of intraoperative blood pressures in terms of a percentage reduction from baseline, perhaps the earliest appearance of this conventional wisdom in the peer-reviewed literature came from a 1923 article from the preeminent anesthesiologist Elmer I. McKesson who suggested that intraoperative shock should be treated with intravenous normal saline until the blood pressure returned to within 90% of baseline.<sup>3</sup> McKesson’s statement and similar guidelines have been promulgated over the years, often with limited evidence. As an echo of this tradition of poorly grounded pronouncements, McKesson’s original 1923 article itself remained entirely unreferenced until 2012.<sup>4</sup>
3. In addition to the phenomenon of white-coat hypertension, our specialty should also be aware of the increasingly recognized inverse phenomenon of “masked hypertension.” Masked hypertension is present when otherwise hypertensive people (as determined by a gold-standard ambulatory blood pressure monitoring device) repeatedly demonstrate blood pressures in the normal range specifically within healthcare contexts.<sup>5</sup> It may be projection that leads anesthesiologists to be more *anxious* to assume our hypertensive patients are “just nervous” than we are to ask which of our apparently normotensive patients are in fact masked hypertensives who should also be treated differently while under our care.
4. Most importantly, while Drummond, et al. address the important question of how clinicians should account for white coat hypertension in defining the elusive “true baseline blood pressure” as a guide to intraoperative management, we should be

cautious not to overlook perhaps the most important blood pressure intervention we could provide for our hypertensive patients – namely, prompt postoperative referral to an outpatient specialist for improved longitudinal control of hypertension.<sup>6</sup> While further studies are needed to establish the effectiveness of such referrals, other multidisciplinary preventive health efforts have been shown to improve chronic disease outcomes in several healthcare contexts, including the treatment of hypertension. The potential health benefits resulting from improved treatment of hypertension among surgical patients would far outweigh any possible improvements in perioperative outcomes that might result from slight modifications in our intraoperative blood pressure management. The need is clear. For example, in our own study referenced above,<sup>2</sup> 6.8% of patients who were not seen in a primary care within 6-months following surgery presented with day of surgery systolic blood pressures greater than or equal to 160mmHg, a level that carried greater than 95% specificity for the finding of elevated ambulatory clinic blood pressure. Although defining ideal intraoperative goals for blood pressure are important for our specialty, the best goal for our patients may simply be to identify undertreated hypertension in order to promote timely postoperative primary care follow-up.

## References

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