Most controversial issues raised by the KDIGO 2021 Clinical Practice Guideline for the Management of BP in CKD

Point	Counterpoint
Standardized office measurement of BP is not practical. It takes too much time in the clinic.	All large trials examining BP targets and hard outcomes used standardized measurement. Since the benefits associated with proper measurement outweigh the burden of time or cost, such effort is worthwhile. Moreover, the relationship between routine non-standardized and standardized office BP measurement is unpredictable for any individual patient, and thus a correction factor cannot be applied. Would you accept significant degree of bias or inaccuracy for measurement of serum creatinine, potassium, body weight, or age?
KDIGO recommends attended or unattended measurements but SPRINT and ACCORD used unattended BP.	Both trials used standardized office measurements, attended and unattended, with an automated device. The SPRINT protocol did not specify whether to obtain attended or unattended measurements, and similar CV risk reductions were observed irrespective of attended or unattended measurement. Differences between attended and unattended BP values are notably small, so proper patient preparation and measurement is key.
The SBP target recommendation is based on a single trial. The data were extrapolated from general population to CKD, with and without diabetes.	SPRINT enrolled patients without diabetes. It is the only large trial that examined CV events as the primary outcome and mortality as a secondary outcome with a prespecified CKD subgroup comparing two BP targets. The results are robust and there was no effect modification by baseline CKD status for these outcomes. In the standard glycemic subgroup of the ACCORD trial (which enrolled patients with diabetes), the primary CV benefit of intensive SBP lowering was similar to that observed in SPRINT. Future research should be conducted in specific CKD subpopulations to examine the broad applicability of the more intensive SBP target.
Subgroups (e.g., proteinuria >1 g, CKD G4 and G5, ADPKD or other etiology) were not sufficiently addressed by SPRINT.	We agree that patients with proteinuria >1 g/d, CKD G5, and ADPKD were excluded from the SPRINT trial; and the proportion of patients with CKD G4 was quite small. However, there is no evidence or strong theoretical reasons at this time to suggest that these subgroups would behave differently. In ADPKD, there is evidence that a target SBP <110 mm Hg is beneficial compared to a higher SBP target. We agree that caution should be exercised in these subgroups and more research specifically targeting these subgroups are needed. However, until there is evidence to the contrary, the SBP target <120 mm Hg appears to be reasonable for these subgroups.
The findings of the ACCORD trial are not consistent with the findings from SPRINT.	ACCORD did not recruit many patients with CKD because SCr >1.49 mg/dl was an exclusion criterion. ACCORD had a factorial design and in those randomized to standard glycemic control, a target SBP <120 mm Hg was shown to be beneficial compared to <140 mm Hg. These findings are similar to those observed in SPRINT.
There is a greater risk of stroke with SBP target <120 mm Hg vs. <140 mm Hg.	In SPRINT (including CKD) and ACCORD (primarily without CKD), stroke risk was lower or similar, but not greater, with target SBP <120 mm Hg versus SBP <140 mm Hg.
Older adults are more likely to fall with lower SBP.	Injurious falls, syncope, postural hypotension, and serious adverse events were not different between the lower and standard target arms of SPRINT. This was also the case in the older adult subgroup. In addition, CV, survival, and cognitive benefits were reported with a lower SBP target in SPRINT and in other studies in CKD.[1, 2]

Abbreviations: ADPKD, autosomal-dominant polycystic kidney disease; AKI, acute kidney injury; BP, blood pressure, CKD, chronic kidney disease; CV, cardiovascular; RCT, randomized controlled trial; SBP, systolic blood pressure; SCr, serum creatinine. References: 1. Cheung AK, Rahman M, Reboussin DM, et al. Effects of Intensive BP Control in CKD. J Am Soc Nephrol 2017; 28: 2812-2823; 2. Pajewski NM, Berlowitz DR, Bress AP, et al. Intensive vs Standard Blood Pressure Control in Adults 80 Years or Older: A Secondary Analysis of the Systolic Blood Pressure Intervention Trial. J Am Geriatr Soc 2019.

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It may be more realistic to have two targets, one for which there is great certainty of benefit and another which is more aspirational (e.g., SBP <140 for all; SBP < 120 for some).	This alternative was discussed in detail by the BP Work Group but was eventually rejected, on the basis that: i) there are actually no data showing a benefit of <140 mm Hg compared to a target of, say, <160 mm Hg in CKD; ii) all subgroup within CKD may actually benefit from SBP <120 mm Hg; and iii) that this more complex scheme may encourage clinicians to continue adopting a SBP target <140 mm Hg for all CKD patients and deny many the potential advantages of tighter control. The relatively weak grading of the recommendation statement implies that the many people would want the recommended course of action, but some would not. Clinicians should understand the nature and rationale of the recommendations and engage in shared decision-making with their patients.
Other institutions recommend different targets based on the identical evidence.	This is a common consequence of scientific discourse. Just as there are also other guidelines that recommend the same SBP target of <120 mm Hg, there can be differences in the interpretation of the same evidence base. Our SBP target recommendation is arrived after a thorough systematic review of the literature and the health gains from such intensive control are contingent upon using SBP values obtained using standardized office measurement. Targets, intensive or not, are not meaningful if the protocol for proper patient preparation and measurement techniques are not followed.
In order to meet more intensive targets, frail and multimorbid patients using polypharmacy (including analgesics, sedatives, laxatives, prostate medications) will have more adverse events.	Age and frailty were not treatment effect modifiers of lower SBP on the CV and mortality benefits in SPRINT. Further, there were no differences in serious adverse events between the standard and intensive SBP arms. One caveat to this statement is nursing home residents and those with short life expectancy, as they were not included in the SPRINT trial. The number of BP medications to achieve the SBP target during the trial also did not appear to be a determinant of these outcomes. Nevertheless, individualization of treatment is key.
It is impractical and unwise to recommend targets that most healthcare professionals cannot follow.	The KDIGO Work Group takes the view that patients should not be penalized for suboptimal clinical practice. Good practice takes time to be adopted, and as such, recommending substandard practice of BP measurement or guidance for the sake of convenience will only perpetuate the status quo of suboptimal management and likely continue to lead to suboptimal outcomes.
In some countries, patients with CKD G3 are followed mainly by primary care physicians and these clinicians may not follow the recommendations from KDIGO	The guideline aimed to provide the best possible guidance for the treatment of patients with high BP and CKD. Because the KDIGO Work Group considers the guideline to be appropriate, the likelihood of their immediate acceptance should not be the major criterion driving the recommended guidance. Implementation is the next step in the process where further knowledge translation will need to be performed.
SPRINT and ACCORD demonstrated an increased risk of AKI and faster decline of GFR with target SBP <120 mm Hg vs. SBP <140 mm Hg.	The reported AKI events were generally mild (AKI Stage I) and did not appear to lead to kidney failure during the trial in the ACCORD cohort, the SPRINT cohort, and the SPRINT-CKD cohort. The decline of eGFR in both standard and intensive SBP arms in SPRINT was slow and the difference between the two arms was small. At the same time, intensive SBP lowering led to less, rather than more, albuminuria which may portend a better long-term prognosis of the kidney. Lastly, a recent meta-analysis showed intensive BP control reduces the risk of kidney failure in those with proteinuria at baseline. Although the long-term effects of intensive SBP lowering (<120 mm Hg) on albuminuria or GFR decline are uncertain, its effects on CV, mortality, and cognitive effects are convincing.

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