Response to “Right Analysis—Wrong Conclusion: Obese Youth With Higher BP Are at Risk for Target Organ Damage”

Peter Schwandt,^{1,2} Juergen E. Scholze,³ Thomas Bertsch,⁴ Evelyn Liepold,¹ and Gerda M. Haas¹

To the Editor: We thank Drs Urbina and Falkner very much for their stimulating commentary “Right Analysis—Wrong Conclusion”¹ to our contribution on blood pressure (BP) percentiles in youth.² We acknowledge that they “agreed that BP levels on average are higher in obese youth, but these should not be “forgiven” but rather, they should be evaluated and managed.” We agree that there is no outcome data for pediatric hypertension and therefore no clinical threshold, but only associations between BP and preclinical organ damage. There is no doubt that risk factors should be detected and eliminated as early as possible according to the established guidelines. However, an independent contribution of overall and abdominal obesity has to be considered.³ Furthermore, despite increases in obesity in the Bogalusa Heart Study there was no increase in systolic BP (SBP) or diastolic BP (DBP) levels⁴ and in UK children SBP increased in the past 3 decades, but the parallel increase of body mass index explains only 15% of SBP increase.⁵

This in mind, 3 questions concerning “wrong conclusions” might deserve some answers:

1. Do we have to exclude overweight and obese children and adolescents from normative BP percentiles?

- No, because of nearly identical BP readings: at the 50th, 90th, and 95th percentile 6-year-old children have identical BP readings and in 17-year-old adolescents the maximal difference was only 1–2 mm Hg between all 22,051 youths and 18,917 non-overweight youths in both genders.
- Yes, because percentiles “should not be provided as a function of weight, so as to not encourage relatively high BP to be considered normal just because a child is overweight or obese.”

Including all is unbiased contrary to restriction to normal-weight youth

2. Can we ignore the higher BP levels in overweight and obese youth?

- No, the BP readings are considerably higher in obese youth. For example, the 95th percentile for a median height for a 15-year-old boy is 146/91 mm Hg and the 85th percentile is 138/86 mm Hg. Because of the increased risk of target organ damage consequent management is required.
- Yes, these effects of overweight and obesity provide support to removing overweight and obese children from data on which the reference BP distribution percentiles are developed.

What will happen with these 3,134 (14.2%) removed youths?

3. A 17-year-old obese adolescent asks his physician about his actual reading 154/93 mm Hg

- “Your blood pressure is by far too high according to the most recent percentiles (including only normal-weight young people). Nevertheless, you should reduce urgently and consequently your obesity!”
- According to the charts for obese adolescents your blood pressure is unhealthy though tolerable for a couple of months. You can avoid the label “hypertension” if you have after 6 and 12 weeks two further measurements which will be lower after weight reduction.

We suggest that many of us would vote for answer b. Thus, we might consider to

- Use normative percentiles with or without excluding overweight and obese children and adolescents.
- Use special percentiles for overweight and obese.

Could this be the right conclusion?

Correspondence: Peter Schwandt (API-Schwandt.Haas@t-online.de).

¹Atherosclerosis Prevention Institute, Munich-Nuremberg, Germany; ²Ludwig-Maximilians University of Munich, Munich, Germany; ³Outpatient Clinic-Hypertension Excellence Centre ESH, Universitätsmedizin Berlin, Charité CCM, Berlin, Germany; ⁴Central Laboratory, Paracelsus Medical University, Nuremberg, Germany.

Initially submitted May 6, 2015; date of first revision May 11, 2015; accepted for publication May 14, 2015; online publication June 4, 2015.

doi:10.1093/ajh/hpv085

© American Journal of Hypertension, Ltd 2015. All rights reserved. For Permissions, please email: journals.permissions@oup.com

DISCLOSURE

The authors declared no conflict of interest.

REFERENCES

- Urbina EM, Falkner B. Right analysis—wrong conclusion: obese youth with higher BP are at risk for target organ damage. *Am J Hypertens* 2015; 28:570–571.
- Schwandt P, Scholze JE, Bertsch T, Liepold E, Haas GM. blood pressure percentiles in 22,051 German children and adolescents:

- The PEP Family Heart Study. *Am J Hypertens* 2015; 28:672–679.
3. Rosner B, Cook NR, Daniels S, Falkner B. Childhood blood pressure trends and risk factors for high blood pressure: the NHANES experience 1988–2008. *Hypertension* 2013; 62:247–254.
 4. Freedman DS, Goodman A, Contreras OA, DasMahapatra P, Srinivasan SR, Berenson GS. Secular trends in BMI and blood pressure among children and adolescents: the Bogalusa Heart Study. *Pediatrics* 2012; 130:e159–e166.
 5. Peters H, Whincup PH, Cook DG, Law C, Li L. Trends in blood pressure in 9 to 11-year-old children in the United Kingdom 1980–2008: the impact of obesity. *J Hypertension* 2012; 9:1708–1717.