

## Salt intake monitoring at a population level

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### To the Editor:

I have read with great interest the scientific statement of the British and Irish Hypertension Society on the importance of a valid assessment of salt intake [1]. While I agree that 24-h urine collections, if complete, are the best method to assess salt intake, one should not underestimate the value of urine spot samples—with an adequate equation—to monitor salt intake at a population level [2–4].

To avoid confusion and oversimplification on how to measure salt intake, we have to be explicit on why we want to measure salt intake. It is indeed key to distinguish three goals: (1) to estimate salt intake at the individual level, e.g., to identify patients with a high intake and to follow-up their intake throughout time; (2) to estimate salt intake at the group or population level, e.g., for the monitoring of salt intake in a given population; and (3) to estimate the health risk associated with salt intake. On the one hand, at an individual level, urinary spots are not a convincing method. However, at that level, nothing is really convincing. If we want to estimate salt intake at an individual level, multiple 24-h urine collections would be needed what is not feasible out of a research setting. Urinary spot samples are surely also not adequate for estimating the health risk associated with salt intake, as measurement errors lead to serious biases [1, 5].

On the other hand, urinary spot samples could allow estimating salt intake at a population level. A crucial

element is the ability of the equation to transform a sodium concentration in an excretion estimate. Hence, studies in adults [2] and recently in children [3, 4] have shown that urinary spot samples with proper equations (e.g., Tanaka or Brown) can fairly estimate 24-h urine excretion. Salt intake is however largely overestimated with the Kawasaki equation [2–4, 7]. Further research is ongoing to improve equations and to evaluate if spot urine samples can measure change in salt intake over time [6]. One should also not forget that not willing to collect urine over 24 h and incomplete collections are major difficulties of 24-h urine collections for salt monitoring at a population level, as individuals who agree to collect and give a complete sample are surely not representative of the general population.

More broadly, we should keep in mind that what is needed is a pragmatic method to estimate usual salt intake at a population level. We face similar challenges with the assessment of blood pressure (BP) [8]. To estimate usual BP, multiple 24-h BP measurements are certainly better than a couple of BP readings at office visits; it does however not mean that office BP cannot be used to monitor mean BP level and hypertension control at a population level [9]. By analogy, while multiple 24-h urinary collections are certainly better for estimating usual salt intake, urinary spot samples with the proper equation could be sufficient for the monitoring at a population level.

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### Compliance with ethical standards

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