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Background

Iodine deficiency impairs cognitive development due to inadequate thyroid hormone production. Pregnant women and young children are particularly susceptible [1].

Salt iodization programs have been introduced to prevent and control iodine deficiency: 86% of the world's population is now covered by iodized salt [2].

Because >90% of dietary iodine appears in the urine, median urinary iodine concentration (mUIC) is the recommended indicator for assessing iodine status in populations [3]. mUIC in school-age children has been used as representative of the general population.

Objectives

- Estimate national and global iodine status based on mUIC in school-age children to evaluate the impact of national salt iodization programs in the general population.
- Present first ever global estimates of iodine status in women of reproductive age and pregnant women. The latter are at greater risk of iodine deficiency due to a higher demand for iodine.

Methods

We identified the most recent cross-sectional, population-based iodine surveys conducted between 2002 and 2017 through a systematic online search (PubMed, ISI Web of Science). For unpublished reports, we contacted iodine scientists and partner organizations around the world.

The mUIC was used to classify national iodine status in school-age children, women of reproductive age, and pregnant women.

We compared the current global iodine status to previous global estimates in school-age children from 2003, 2007 and 2011 [4-6].

Results

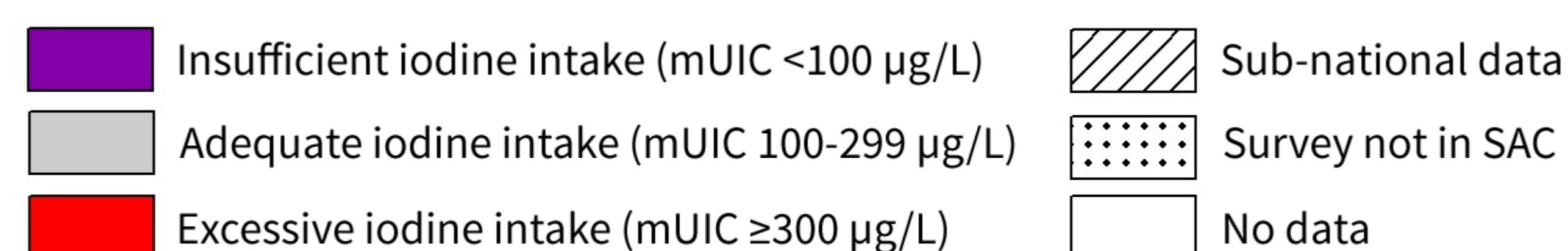
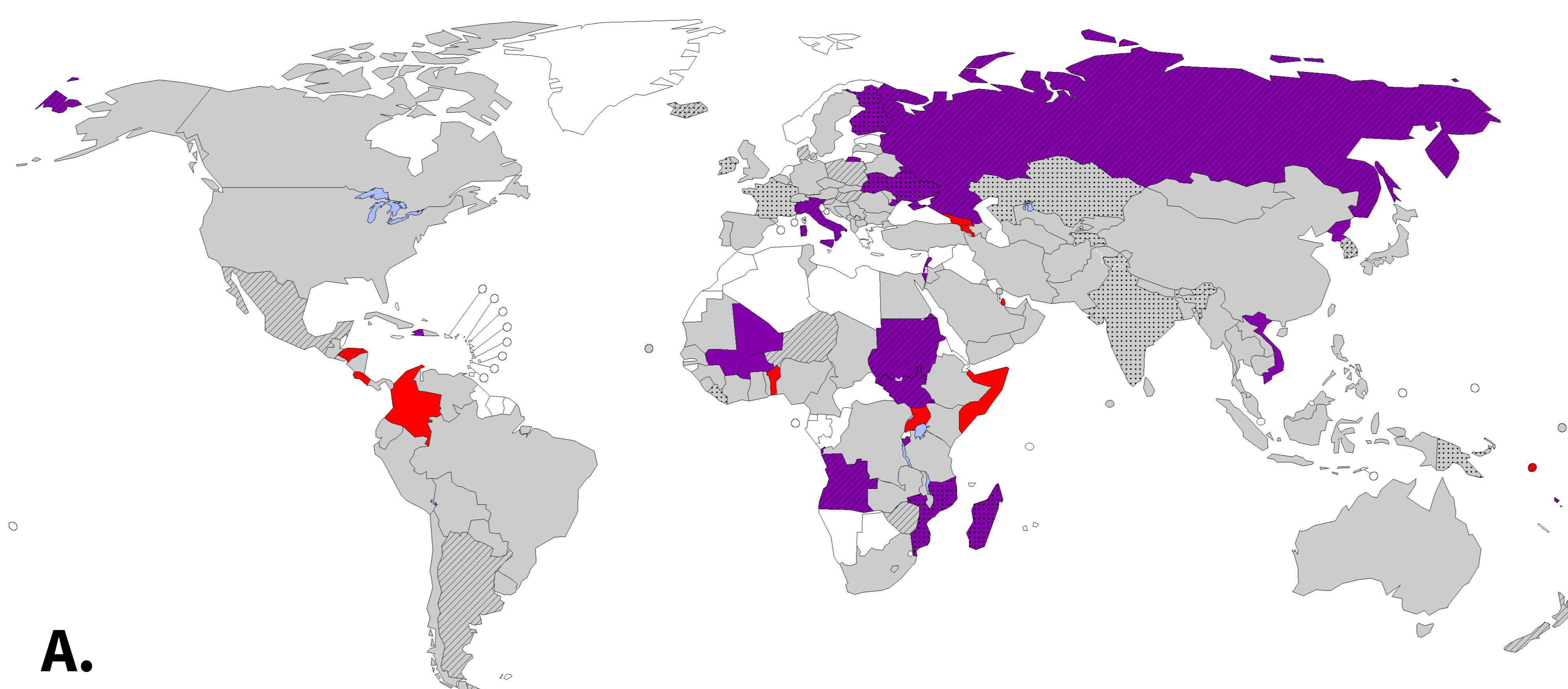
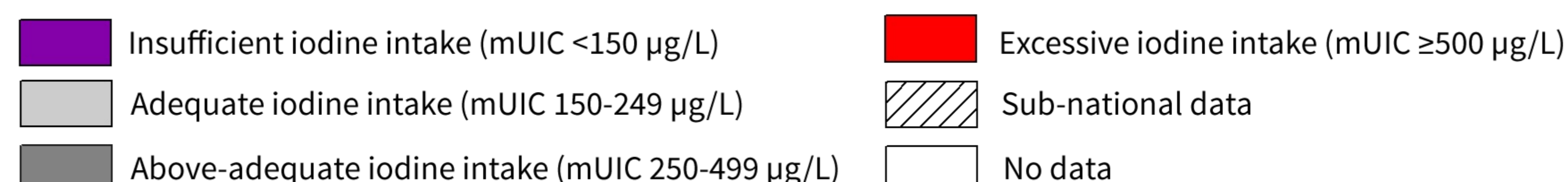
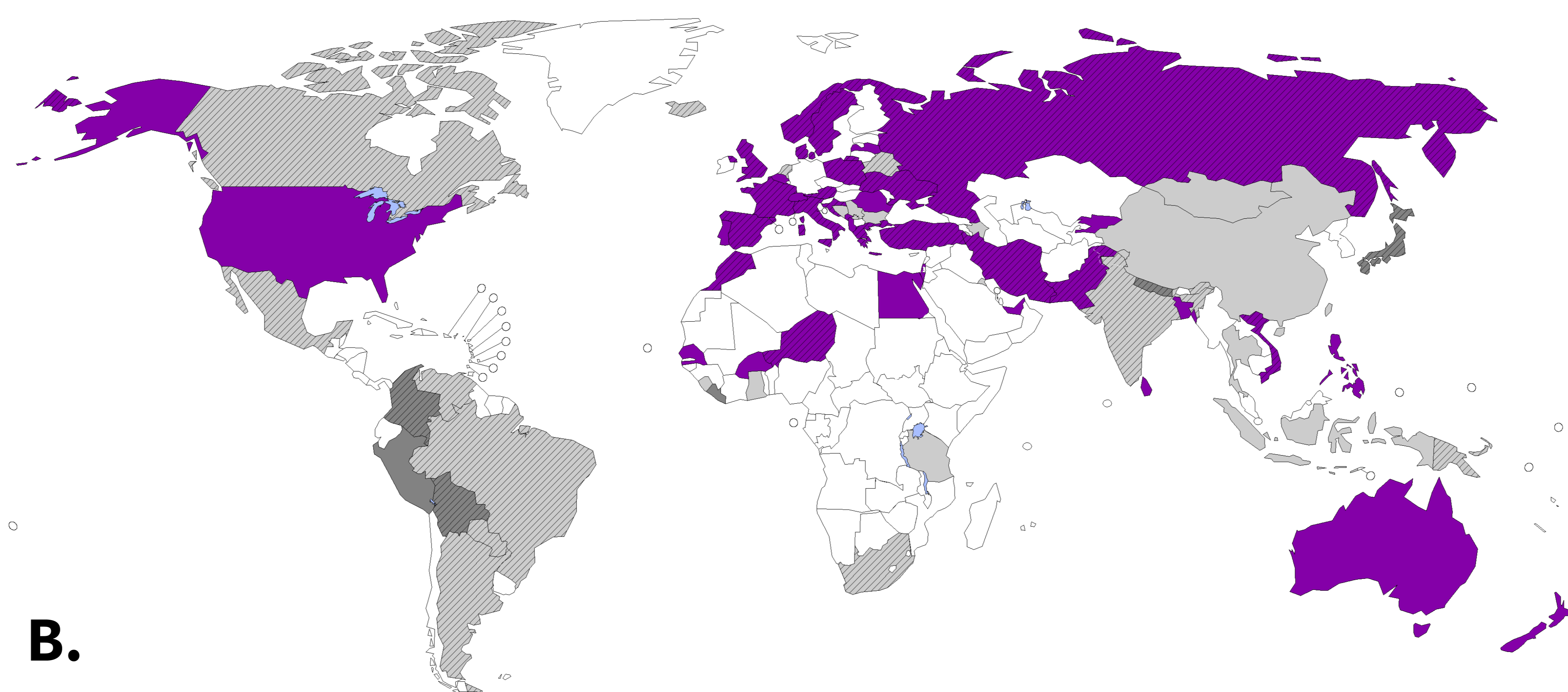


Figure 1. (A) Iodine status in the general population based on survey data in school-age children (SAC); (B) iodine status in pregnant women.

Estimates are based on median urinary iodine concentration (mUIC) reported in national or pooled sub-national surveys from 194 WHO member states conducted between 2002 and 2017.



Representative **school-age children** data were available for 140 (72%) countries. In addition, 52 (28%) countries reported surveys in **women of reproductive age** and 72 (39%) in **pregnant women** (Fig. 1A and B).

There has been a remarkable improvement in the global iodine status from 2003 to 2017 (Fig. 2). The number of iodine-deficient countries decreased from 54 to 19, and the number of countries with adequate iodine intake increased from 67 to 111. In 2017, less than 10% of the world's population lived in countries classified as iodine deficient based on iodine intakes in the general population.

Of the 38 countries with data in both school-age children and women of reproductive age, 10 countries reported iodine deficiency in the women and iodine sufficiency in children.

Of the 40 countries with data in both school-age children and pregnant women, 29 countries reported iodine deficiency in the women and iodine sufficiency in children.

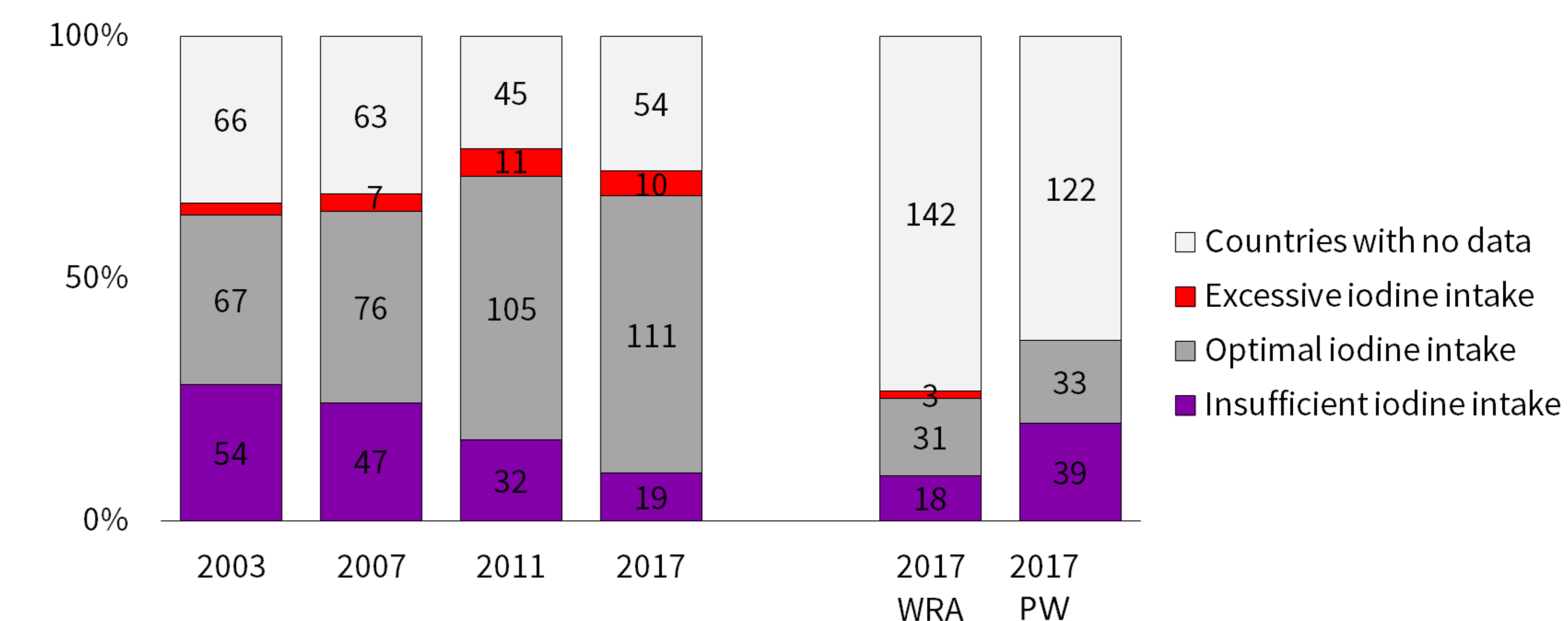


Figure 2. Number of countries according to their iodine status in the general population (trend between 2003 and 2017 [4-6]), and recent data in women of reproductive age (WRA), and pregnant women (PW).

Conclusions

- + Optimal iodine nutrition in the general population is within reach, thanks to the highly successful global strategy of salt iodization.
- Iodine intakes are still inadequate in pregnant and reproductive-age women in many countries. The coverage of adequately iodized salt must be improved to meet the iodine requirements of all population groups.

References

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