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Global increase in thyroid cancer incidence in children and adolescents may be driven by overdiagnosis

Lyon, France, 20 January 2021 – A new study, led by scientists from the International Agency for Research on Cancer (IARC) in collaboration with several international partners, investigated incidence rates of thyroid cancer in children and adolescents aged 0–19 years. This condition was very rare globally until about 2000, but the researchers found that the incidence increased rapidly in recent years in many countries. This finding suggests that overdiagnosis is likely to be the main driver of these increases. Overdiagnosis is the diagnosis of tumours that do not progress to cause symptoms or death in an individual's lifetime.

The study, published today in *The Lancet Diabetes & Endocrinology*,¹ used the most up-to-date, high-quality data from 49 countries and territories worldwide, including several diverse and densely populated low- and middle-income countries.

“We found that the relevant epidemiological features of thyroid cancer observed in children and adolescents closely reflect those already observed in adult populations, for which there is substantial evidence that overdiagnosis plays a major role in the increased incidence rates,” says Dr Salvatore Vaccarella, the IARC scientist who led the study. “Therefore, overdiagnosis could also have a major impact on the rise in the incidence rates of thyroid cancer in children and adolescents.”

Overdiagnosis of thyroid cancer is the consequence of increased surveillance of the thyroid gland and the introduction of new diagnostic procedures, such as neck ultrasonography. This may lead to the detection of many indolent, non-lethal tumours, which are known to exist in the thyroid gland of otherwise healthy individuals of any age, including children and adolescents. The problem of overdiagnosis is more pronounced in settings where health-care services are not well regulated.

Overdiagnosis of thyroid cancer in children and adolescents has important consequences for the quality of life of these young individuals, who are predominantly girls. (Thyroid cancer incidence rates are generally higher in girls than in boys.) Thyroid cancer in children is treated with surgery and often with radioactive iodine, whereas active surveillance without treatment is not recommended. Children with thyroid cancer usually undergo a total thyroidectomy, which requires lifelong thyroid hormone replacement therapy and markedly affects the quality of life.

“On the basis of the results of this study, we suggest that the existing recommendation against screening for thyroid cancer in the asymptomatic adult population who are free from specific risk factors should be

¹ Vaccarella S, Lortet-Tieulent J, Colombet M, Davies L, Stiller CA, Schüz J, et al. Global patterns and trends in incidence and mortality of thyroid cancer in children and adolescents: a population-based study. *Lancet Diabetes Endocrinol*. Published online 20 January 2021. [https://doi.org/10.1016/S2213-8587\(20\)30401-0](https://doi.org/10.1016/S2213-8587(20)30401-0)

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extended to explicitly recommend against screening for thyroid cancer in similar populations of children and adolescents,” says Dr Vaccarella.

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The International Agency for Research on Cancer (IARC) is part of the World Health Organization. Its mission is to coordinate and conduct research on the causes of human cancer, the mechanisms of carcinogenesis, and to develop scientific strategies for cancer control. The Agency is involved in both epidemiological and laboratory research and disseminates scientific information through publications, meetings, courses, and fellowships. If you wish your name to be removed from our press release emailing list, please write to com@iarc.fr.