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## New IARC study highlights that the large variability in prostate cancer incidence in Europe is indicative of overdiagnosis

**Lyon, France, 4 September 2024** – A new study, published today in *The BMJ*,<sup>1</sup> suggests that significant overdiagnosis of prostate cancer in Europe is due to the highly variable patterns of opportunistic testing with a blood test that measures the amount of prostate-specific antigen (PSA). The study focuses on the epidemiological characteristics of prostate cancer in Europe, and in particular the contrast between the large heterogeneity of the trends in incidence of prostate cancer and the more uniform decrease in mortality from prostate cancer. Overdiagnosis is the diagnosis of a tumour that would not otherwise progress to cause symptoms or death in an individual's lifetime.

The study was led by scientists from the International Agency for Research on Cancer (IARC) in collaboration with researchers at Sun Yat-sen University Cancer Center (China), Aviano National Cancer Institute (Italy), the Cancer Registry of Norway (Norway), and Tampere University (Finland). The scientists analysed the most up-to-date and high-quality prostate cancer incidence data from the IARC <u>Global Cancer Observatory</u> and mortality data from the World Health Organization (WHO) Mortality Database. They provided a comparative assessment of the main epidemiological features of prostate cancer in 26 European countries, quantifying the range of variability in incidence rates against temporal variations in PSA testing and relative to mortality rates, as a contribution to the evaluation of the population-level impact of the proposed European Union (EU) screening initiative.

During 1980–2017, prostate cancer incidence rates increased everywhere in Europe but in a rather heterogeneous fashion across countries. The large variation in both the magnitude and the rate of change of incidence paralleled the temporal variations in PSA testing. In contrast, mortality rates were much lower than and varied much less than incidence rates, with steady decreases in most countries and smaller temporal differences between countries. The 20-fold variation in prostate cancer incidence across countries during the study period contrasted with a 5-fold variation in prostate cancer mortality.

"The results of this study are compatible with large overdiagnosis of prostate cancer occurring as a consequence of opportunistic screening with PSA testing," says Dr Salvatore Vaccarella, the IARC scientist who led the study.

<sup>&</sup>lt;sup>1</sup> Vaccarella S, Li M, Bray F, Kvale R, Serraino D, Lorenzoni V, et al. (2024). Prostate cancer incidence and mortality in Europe and implications for screening activities: population based study. *BMJ*. Published online 4 September 2024; <u>https://doi.org/10.1136/bmj-2023-077738</u>





Overtreatment may be a consequence of overdiagnosis, and the harms of overdiagnosis may be exacerbated by aggressive management.

The new study suggests that caution should be used when implementing prostate cancer screening programmes, because it shows that unregulated and opportunistic PSA testing might have a very different impact at the population level in Europe compared with the results observed in the randomized screening trials, in particular with respect to the magnitude of overdiagnosis.

The EU Europe's Beating Cancer Plan recently released recommendations for a new screening strategy for prostate cancer. In particular, the EU recommended that countries should take a stepwise approach, including piloting and further research to evaluate the feasibility of implementation of organized programmes aimed at ensuring appropriate management and quality on the basis of PSA testing for men up to age 70 years, in combination with additional magnetic resonance imaging (MRI) scanning as a follow-up test.<sup>2</sup> The use of pre-biopsy MRI and of targeted prostate biopsies, compared with systematic biopsies alone, is expected to decrease the number of men who are unnecessarily diagnosed with prostate cancer.

"The results of this new study emphasize the importance for any future implementation of prostate cancer screening to be carefully designed to minimize the harms of overdiagnosis, with careful quality assurance, assessment, and continuous monitoring of benefits and harms at the population level," says Dr Vaccarella.

## For more information, please contact

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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 <u>com@iarc.who.int</u>.

<sup>&</sup>lt;sup>2</sup> European Commission (2022). Annex to the Proposal for a Council Recommendation on strengthening prevention through early detection: a new EU approach on cancer screening, replacing Council Recommendation 2003/878/EC. Available from: <u>https://www.europa-uomo.org/wp-content/uploads/2022/10/annex-councel-recommendation-2022.pdf</u>.