

Glycated hemoglobin and cholesterol testing in Latvian population – single laboratory data

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Objectives

Glycated hemoglobin (HbA1c) and cholesterol are extensively used for prophylaxis, diagnostics and monitoring. Their testing results and may serve as indicators for population health and overall availability of medical services.

The aim of the study was to analyze testing coverage and rate of abnormal results of HbA1c and cholesterol by gender and age in a bulk single laboratory cohort.

Materials and methods

Continuous anonymized results of HbA1c and total cholesterol tests performed at SIA “Centrālā laboratorija” in 2022 on ARCHITECT i4000SR were analyzed.

Demographic structure of Latvian population was obtained from the Latvian Central Statistical Bureau and split into 10-year age groups. Yearly testing coverage (percentage of age group population tested) and prevalence of abnormal tests (percentage of abnormal results from tests in age groups) were calculated.

Results

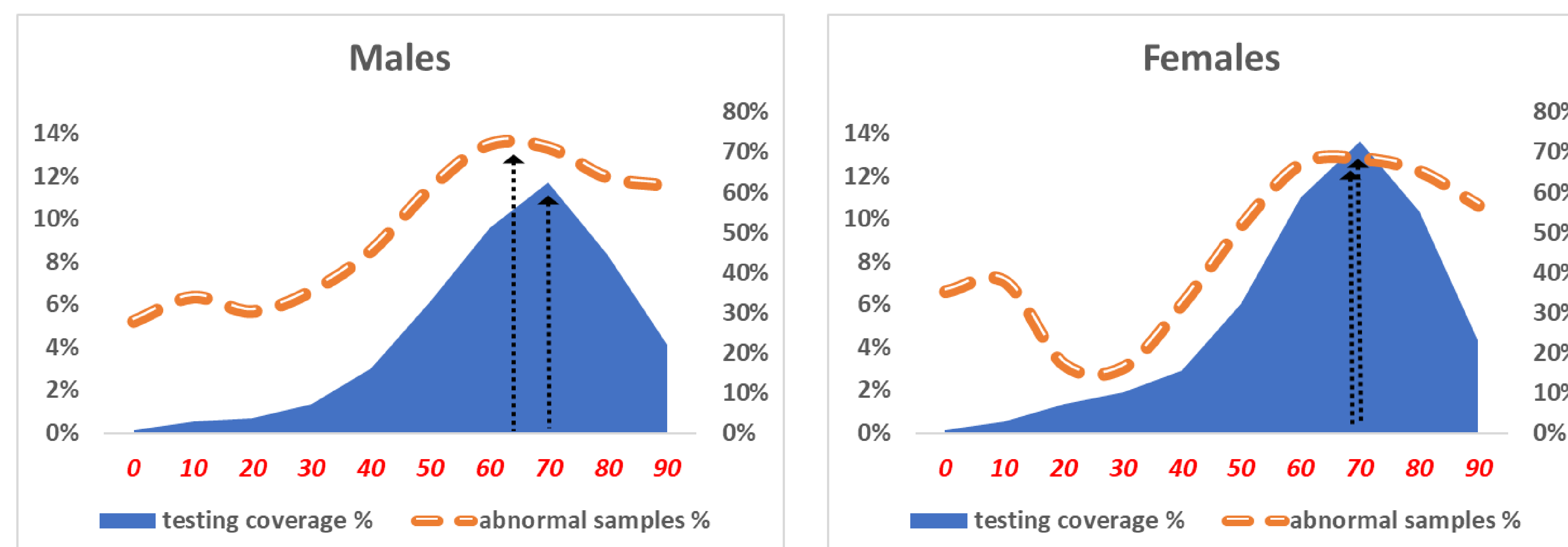


Figure 1 . HbA1c – age distribution

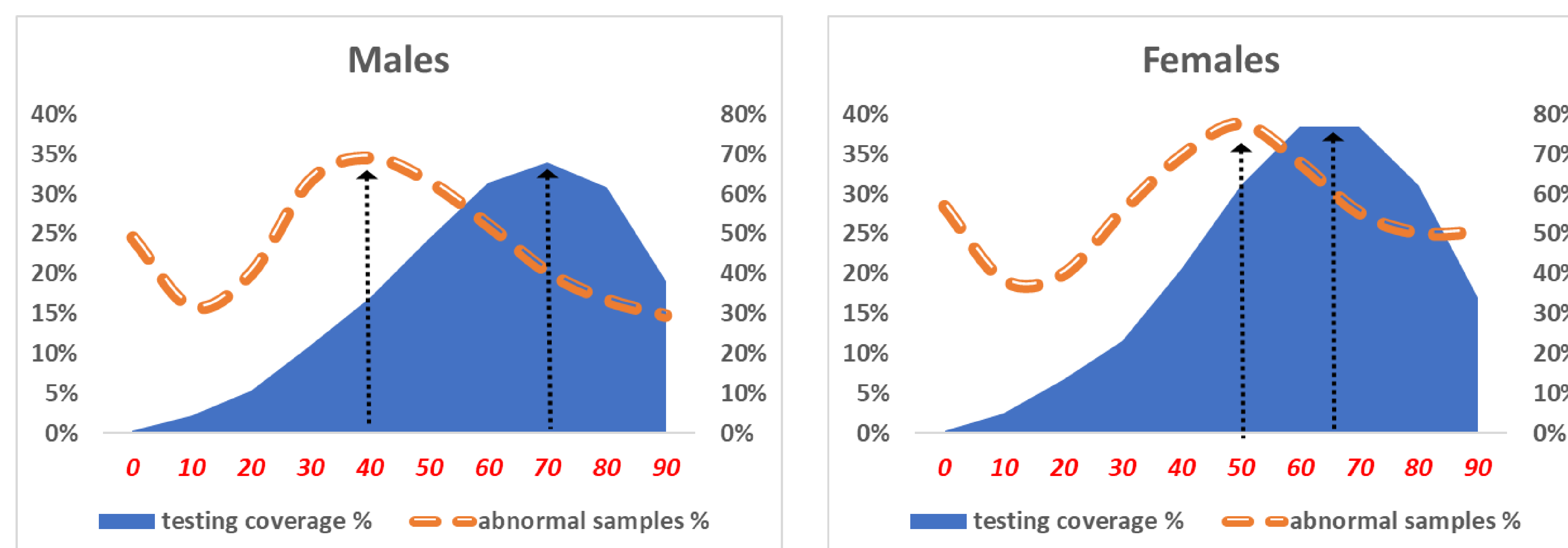


Figure 2 . Total cholesterol – age distribution

HbA1c. 88596 tests, M:F 0.60. 60.1% results abnormal (99.4% elevated), 62.1% in males and 58.7% in females. Testing peak in females at 70-79 (coverage 13.6%) and broad plateau of abnormal results at 60-89 (abnormal rate above 65%). Testing intensity in males also the highest at 70-79 (11.7%), while abnormal results peaked at 60-69 (72.0%) and remained high. Percentage of abnormal results after 80 in both genders only slightly lower than peak values, but testing dropped almost to zero.- **figure 1**.

Cholesterol. 290231 tests, M:F 0.62. 60.2% results abnormal (88.5% elevated), 54.9% in males and 63.5% in females. In females, maximal testing was at 60-69 (coverage 25.3%), while the peak of abnormal results was at 50-59 (77.5%). In males, the most covered age group was also 60-69 (coverage 24.1%), but the peak of abnormal results was at 40-49 (69.1%). The rate of abnormal results decreased in males after 80, but remained high in elderly females (about 50%); coverage dropped dramatically in both genders. – **figure 2**.

Conclusions

- **The study revealed a potential for improving the studied regimens.**
- **HbA1c test count was more than 3 times lower than cholesterol, particularly in children, younger adults and elderly; the result of relying on fasting glucose for diabetes diagnostics and monitoring.**
- **Testing for cholesterol is insufficient in younger adults and seniors.**
- **Men seem to be undertested.**
- **Increase of abnormal cholesterol results becomes apparent after age 30 and abnormal HbA1c after 40, supporting early screening for dyslipidemia and diabetes.**
- **“Centrālā laboratorija” is the largest laboratory in Latvia, nevertheless, the study is clearly limited. Comparison with other Latvian and international data would be useful.**