



BIONEXT

LABORATOIRE LUXEMBOURGEOIS
D'ANALYSES MÉDICALES



MEDICAL SCORING

THE LABORATORY'S CONTRIBUTION TO CHRONIC DISEASE PREVENTION

Chronic disease development estimation scores are used to identify at-risk patients and thus implement preventive measures that limit the occurrence of disease or its diagnosis at an advanced stage. Medical laboratories have a significant role to play in screening such disorders, as most scores include medical laboratory test results.

Epidemiological context

Cardiovascular disease (CVD) is the leading cause of death in the Grand Duchy of Luxembourg (approximately 33%) and close to 80% of the country's population is affected by an **avoidable cardiovascular disease factor**. The range of cardiovascular disorders is closely connected with that of other chronic conditions, particularly **chronic kidney disease (CKD)** and **diabetes**.

Estimates indicate that 6.5 % of the population of Luxembourg suffer from diabetes and the incidence of pre-diabetes (6.1 mmol/L \leq fasting blood sugar < 7 mmol/L or blood sugar 2 hours after the two-hour GTT ranging between 7.8 and 11 mmol/L) is 25%. The risk of pre-diabetes developing into diabetes is estimated to be 5 to 10% per year. Further, the ORISCAV study of 2008 has shown that close to **a third of diabetes sufferers in Luxembourg were unaware of their condition**.

Regarding chronic kidney disease, latest data suggest that 6.3% of the inhabitants of the Grand Duchy are affected by it. That risk is 3 to 4 times higher in the case of high blood pressure and diabetes respectively.

Scores validated by learned societies: Risk stratification tools offered by Bionext

These conditions go undetected for a long time, often leading to **delayed diagnoses** and **the failure to put in place preventive measures** that could slow down the development of the disease. In order to fulfil its role as an indispensable player in the strategy for preventing chronic disease, Bionext has elected to provide physicians with a **medical scoring service**. Four scores validated by learned societies are incorporated into the strategy of the laboratory:



SCORE2

Recommended by the [European Society of Cardiology \(ESC\)](#) and by the Scientific Council for estimating the risk of the occurrence of a cardiovascular event in the next 10 years



FINDRISC

Recommended by the [Scientific Council](#) for estimating the risk of developing type 2 diabetes in the next 10 years



FRAMINGHAM

Recommended by the [American Heart Association](#) for estimating the risk of developing high blood pressure in the next 4 years



4-variable KFRE

Recommended by the [European Renal Association](#) for estimating the risk of developing end-stage kidney disease within 5 years of patients with chronic kidney disease (stages 3a to 5)

SCORE2

- This new SCORE version takes account of the combined risk of lethal and non-lethal cardiovascular events and makes it possible to avoid overestimating the cardiovascular risk in regions where non-cardiovascular risks are high. It also incorporates risk recalibration according to the geographic location, including four distinct European zones
- ESC 2021 recommendations define the LDL and non-HDL cholesterol targets to reach depending on the SCORE2 risk level. They are stated in the test report
- For patients above the age of 70, the “older persons” version of the score (SCORE2-OP) should be used

Score calculation methods

	Clinical and biological data	Conditions of application
FINDRISC	Age Height Weight Waist circumference Heredity Family history of high blood glucose High blood pressure Fruit and vegetable consumption Physical activity	Age conditions: > 18 years No diabetes
FRAMINGHAM	Age Gender Weight Systolic and diastolic blood pressure Smoker Heredity	Age conditions: 20 to 80 years No diabetes SBP between 50 and 140 mmHg DBP between 30 and 90 mmHg Weight between 32 and 181 kg Height between 114 and 228 cm
KFRE	Age Gender GFR (CKD-EPI) Urine albumin Urine creatinine	Age conditions: > 18 years Chronic kidney disease stage 3a to 5
SCORE2	Age Gender Total cholesterol Systolic blood pressure (SBP) Smoker HDL cholesterol	Age conditions: 40 to 69 years No diabetes SBP between 100 and 180 mmHg Non-HDL cholesterol between 3.0 and 6.9 mmol/L

In practice



Diagnostic approach

The nurse **offers all patients** with a prescription for blood glucose and/or lipid profile tests an opportunity to **answer a questionnaire for calculating the different eligible scores**. The nurse also has the equipment for measuring the patient's waist circumference and blood pressure.

These scores can also **be prescribed explicitly** by including the laboratory tests required for the calculations (mentioned in **bold** in the table below).

The medical scoring service is offered for no extra charge.

The results of the various scores are **only sent to the prescribing physician** to allow them to discuss the implementation of preventive measures along with the patient.



Key points

- ✓ Chronic disease prognostic scores make it **easier to identify at-risk patients** to apply preventive measures.
- ✓ The scores used by Bionext are validated by learned societies and **cover the most frequent chronic diseases** in the Grand Duchy of Luxembourg.
- ✓ The scoring service is offered **for no extra cost** to patients with a **prescription for lipid profile and/or blood glucose tests** and also whenever expressly requested by the physician.
- ✓ The scoring results are **only sent to the prescribing physician**.

