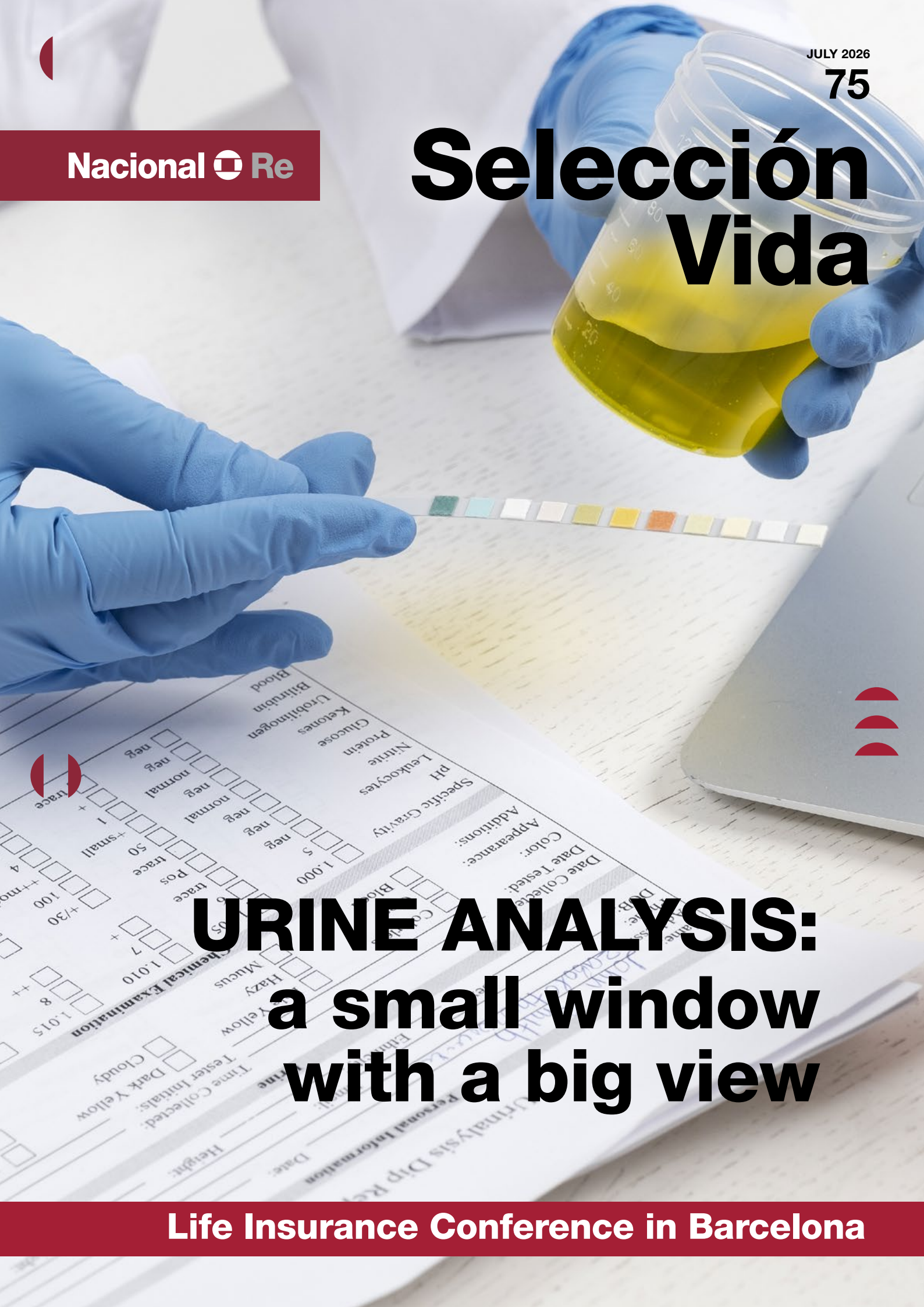



Nacional  Re

Selección Vida



**URINE ANALYSIS:
a small window
with a big view**

Life Insurance Conference in Barcelona



URINE ANALYSIS: A SMALL WINDOW WITH A BIG VIEW

Urinalysis is a classic diagnostic tool which, despite its simplicity and low cost, remains of exceptional value in assessing a patient's state of health.

In the field of insurance medicine, where the aim is to assess risk in an objective, reproducible and efficient manner, urine analysis provides key information that complements the health declaration and other laboratory tests.

From a practical point of view, urine acts as a 'mirror' of multiple physiological functions, particularly those of the renal and metabolic systems. By analysing it, it is possible to detect abnormalities which, in many cases, have not yet given rise to obvious clinical symptoms. This ability to identify subclinical disease is particularly relevant in risk underwriting, as it allows for the anticipation of possible future contingencies.

A SINGLE DROP OF URINE, WHEN PROPERLY ANALYSED, REVEALS MORE THAN MEETS THE EYE

One of the most significant parameters is proteinuria, that is, the presence of protein in the urine. Under normal conditions, protein excretion is minimal; therefore, its detection suggests an impairment in the permeability of the renal glomerulus. Persistent proteinuria may be an early indicator of chronic kidney disease or of systemic conditions such as diabetes mellitus or high blood pressure. In the con-

text of health insurance, its presence necessitates a more thorough assessment, as it is associated with an increased risk of cardiovascular and renal morbidity and mortality.

Another highly significant finding is haematuria, defined as the presence of blood in the urine. It can be macroscopic or microscopic, and its clinical significance is wide-ranging, from benign causes such as urinary tract infections or kidney stones to more serious conditions such as tumours of the urinary tract. In terms of underwriting, haematuria should not be interpreted in isolation, but in conjunction with other findings and the insured person's medical history. Its persistence, without apparent cause, may require further investigations before the risk is accepted.

Glucosuria, or the presence of glucose in urine, is another key parameter. It usually occurs when blood glucose levels exceed the renal threshold, which typically indicates poor metabolic control in patients with diabetes mellitus. In candidates without a previous diagnosis, it may be an initial finding suggesting the need for confirmatory investigations. From an actuarial perspective, diabetes is a major risk factor; therefore, any indirect indication of its presence has significant implications for pricing or even for the acceptance of the risk.

Urinary specific gravity provides information on the kidneys' ability to concentrate urine. Persistently low values may indicate impaired tubular function, whilst high values may be observed in cases of dehydration. Although this parameter is often underestimated, it can provide clues as to the functional status of the kidneys and the body's fluid balance.

Urinary pH also has clinical utility. Although it may vary depending on diet, extreme or persistent values may be associated with metabolic disorders, specific urinary tract infections or a predisposition to certain types of stone formation. Whilst its value in isolation is limited, when considered as part of the overall analysis it can contribute to a more comprehensive assessment.

Another key component of urine analysis is the urinary sediment, which allows for the identification of cells, casts, crystals and microorganisms. The presence of leukocytes suggests infection or inflammation, whilst casts may point to more specific renal conditions. For example, haematuric casts are often associated with glomerular diseases, whilst granular casts may appear in cases of tubular damage. This level of detail provides a qualitative dimension that is very useful in clinical assessment.



In the context of insurance medicine, the detection of active urinary tract infections is of relative importance, as these are usually acute and treatable conditions. However, their recurrence may be indicative of structural or functional abnormalities of the urinary tract, which can have implications for risk assessment.

Bilirubin and urobilinogen in urine are liver function markers, and abnormalities in these levels may be the first sign of liver disease, cholestasis or chronic red blood cell destruction.

Another important aspect is the detection of ketones in urine, which may indicate prolonged fasting, ketogenic diets or metabolic decompensation, particularly in diabetic patients. In certain contexts, ketonuria may be a marker of poor metabolic control, providing relevant information for the assessment of the patient.

Urinalysis can also provide indirect information about systemic diseases. For example, the combined presence of proteinuria and haematuria may suggest glomerulonephritis, whilst certain abnormalities may occur in autoimmune diseases such as systemic lupus erythematosus. Although these conditions usually require more specific tests for diagnosis, urinalysis can serve as an early warning sign.

From an operational perspective, one of the major advantages of urine analysis is that it is easy to obtain and low-cost, making it an ideal tool for screening large populations. This is particularly useful in mass underwriting processes or during regular portfolio reviews. Furthermore, its non-invasive nature makes it more readily accepted by policyholders.

However, it is important to bear in mind its limitations. Results must always be interpreted in context, taking into account factors such as age, gender, medication and the conditions under which the sample was collected. For example, a poorly collected sample can lead to false-positive results, particularly in the case of leukocyturia or bacteriuria.

In short, urinalysis remains a highly useful test in health insurance medicine. Its ability to detect renal, metabolic and systemic abnormalities, combined with its accessibility and low cost, makes it an indispensable tool in assessing an insured person's clinical condition. Used appropriately and in combination with other clinical data, it contributes significantly to a more accurate and well-founded risk assessment.

TABLE 1. SUMMARY OF THE FINDINGS OF A URINE TEST IN THE CONTEXT OF HEALTH INSURANCE

Parameter	Normal value	Anormality	What it may indicate	Insurance risk	Clinical impact
PHYSICAL EXAMINATION					
Colour / turbidity	Pale yellow, clear	Dark, cloudy, reddish	Dehydration, haematuria, infection, liver disease	LOW	Indicative; requires confirmation
CHEMICAL TEST (TEST STRIP)					
Glucose	Negative	Positive (glucosuria)	Uncontrolled or undiagnosed diabetes mellitus	HIGH	Elevated cardiovascular and renal risk in the medium term
Proteins / albumin	Negative or trace amounts	Proteinuria / microalbuminuria	Early-stage kidney damage, hypertension, complicated diabetes, glomerulonephritis	HIGH	Early marker of nephropathy
Blood (haematuria)	Negative	Positive	Kidney stone, infection, bladder or kidney tumour, nephritis	HIGH	Persistent haematuria requires mandatory investigation
Nitrites	Negative	Positive	Bacterial urinary tract infection	LOW	Significant if recurrent
Leukocytes	Negative	Positivos (piuria)	Urinary tract infection, tubulointerstitial nephritis	LOW	In conjunction with nitrites: strong suspicion of active UTI
Ketone bodies	Negative	Positive (pyuria)	Diabetic ketoacidosis, prolonged fasting, ketogenic diet	MODERATE	Critical in known diabetics
Specific gravity	1.005 – 1.030	Very low or very high	CKD, diabetes insipidus, dehydration, SIADH	MODERATE	Reflects the kidneys' functional ability to concentrate

Parameter	Normal value	Anormality	What it may indicate	Insurance risk	Clinical impact
CHEMICAL TEST (TEST STRIP)					
pH	4.5 – 8.0	Very acidic or very alkaline	Kidney stones, acidosis, alkalosis, urinary tract infection	LOW	Useful for assessing the risk of kidney stones
Bilirubin	Negative	Positive	Liver disease, cholestasis, haemolysis	MODERATE	First sign of liver or biliary tract involvement
Urobilinogen	Traces (0.2–1 mg/dL)	Elevated or absent	Haemolysis, hepatitis, cirrhosis / obstructive cholestasis	MODERATE	Used in conjunction with bilirubin to assess liver function
MICROSCOPIC EXAMINATION (SEDIMENT)					
Blood clots	Absent	Present	Active glomerulonephritis	HIGH	Active glomerular damage; changes the risk assessment
Granular casts	Absent	Present	Tubulointerstitial nephritis, CRF	HIGH	Indicates established tubular damage
Hyaline casts	Occasional	Abundant	Renal stress, dehydration, intense exercise	LOW	Non-specific; assess clinical context
Crystals	Scarce or absent	Abundant or pathological	Kidney stones, hyperuricaemia, oxalosis	MODERATE	The type of crystal indicates the underlying metabolic cause

Parameters, reference values, clinical significance and impact on the insured person's risk profile.
HTA: high blood pressure · CRF: chronic kidney disease · UTI: urinary tract infection · SIADH: syndrome of inappropriate antidiuretic hormone secretion

JORNADA VIDA

Nacional de Reaseguros held a conference focusing on the life insurance sector on 17 June in Madrid, at which a number of key topics were discussed, including the *Yggdrasil Decision Tree*, the launch of the book sponsored by the company, **The History of Medicine in Insurance**, and a presentation on the evolution of the industry from a European perspective.

The event brought together more than 15 insurance companies and was opened by Marcos Acosta, Head of Life Insurance at Nacional Re. During his speech, Acosta highlighted the firm's leadership in innovation within the Spanish market, reviewing the development of its key tools: from the Davinci Risk Manual to the launch of the new Yggdrasil Decision Tree.

Miguel Ángel Pinilla, head of risk selection, then explored the workings of this tool in greater depth, detailing its features, the six automatic pricing engines, user roles, security modules and benefits, amongst other aspects, concluding his presentation with several practical examples.

Dr Pedro Gargantilla, for his part, presented the book *History of Insurance Medicine*, offering an overview of the origins of insurance, medical insurance in antiquity, the challenges of the 21st century, and some of the most curious policies in history, amongst other topics.

Finally, Sina Plietzsch, Head of Innovation and New Business at Versicherungsform Leipzig, shared her views on the strategic role of trend analysis and our ability to influence, based on these trends, certain factors such as AI, longevity or evolving gender roles.



Nacional Re 2025

Growing with strength and stability.

Accepted reinsurance premiums

817.634.084 €

▲ 5,1%

Gross income

67.306.626 €

▲ 48,8%

Investment assets

1.671.005.801 €

▲ 0,9%

Total equity

498.059.832 €

▲ 7,4%

Credit rating

A.M. Best > "A" stable outlook
S&P Global Ratings > "A" stable outlook

Solvency II

Ratio between eligible own funds
and SCR > 208,1%



Selección Vida

Depósito legal:M-344-97



SELECCIÓN VIDA is a publication edited by the Personal Lines Department of **NACIONAL DE REASEGUROS, S.A.** in collaboration with Doctor Pedro Gargantilla. Zurbano, 8 - 28010 Madrid
www.nacionalre.es - nr@nacionalre.es