

<h2>Ketones (urine)</h2>	
Description	There are three ketone bodies: acetoacetate, beta-hydroxybutyrate and acetone. The urine assay only measures acetoacetate.
Indication	Hyperglycaemia and to aid the diagnosis and monitoring of diabetic ketoacidosis (DKA), investigation of high anion gap metabolic acidosis.
Additional Info	Ketone (ketoacids) production occurs in the liver via the breakdown of free fatty acids. The major ketones present in the blood are acetoacetate and beta-hydroxybutyrate, normally present in equimolar concentrations. Acetone levels are much lower. Ketones are normally undetectable in urine. Acetoacetate and beta-hydroxybutyrate provide an alternative energy source when glucose is unavailable (e.g. starvation) or when glucose cannot be utilised (e.g. in diabetes mellitus). The excessive production of ketones leads to increased excretion in the urine.
Concurrent Tests	Blood glucose, Blood gases
Dietary Requirements	None
Interpretation	The assay provides semi-quantitative results. Urine ketones may be increased in DKA, prolonged fasting, anorexia nervosa, persistent vomiting, after alcohol consumption and in glycogen storage diseases I, III and VI. Positive urine ketone results may also be found in morning first-void samples from pregnant women. <u>Diabetic Ketoacidosis (DKA)</u> The major ketone produced in DKA is beta-hydroxybutyrate and the ratio of beta-hydroxybutyrate to acetoacetate can increase to 6:1. Therefore, because the assay only detects acetoacetate, the initial ketoacidosis may be more severe than indicated by the urine ketone level. After treatment beta-hydroxybutyrate is converted to acetoacetate. Thus, the ketoacidosis may appear to worsen with treatment and urine ketones may remain detectable long after recovery of the acid-base status. Blood beta-hydroxybutyrate and/or acid-base status may be a better indicator for managing DKA.
Collection Conditions	None
Frequency of testing	As required