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ST VINCENT'S PATHOLOGY

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# URINE CREATININE INFORMATION SHEET

## PHYSIOLOGY

Creatinine is produced at a constant rate in muscle, released into the bloodstream and freely filtered at the glomerulus together with a small amount of tubular secretion. There is also a small amount of loss into the gastro-intestinal tract but in steady state conditions the amount of creatinine in the urine closely reflects creatinine production in the muscles. The urine creatinine concentration is also affected by the volume of urine that is produced, rising as the urine volume falls and vice versa.

## URINE CREATININE CONCENTRATION

Urine creatinine concentration is used to assess the concentration of a urine sample, with high values representing a concentrated sample and low values indicating a dilute sample. This property is used to correct some urine analytes for the effect of urine concentration by expressing the result as a ratio to urine creatinine. An example of this is urine albumin where the results are expressed as mg albumin per mmol creatinine (mg/mmol). Note that this process works well to minimise the effects of changes in the hydration status within an individual, however the creatinine correction is also affected by the muscle mass of the patient. Thus this type of correction also includes a component of correction for body size.

Urine creatinine is also used to assess urine concentration for urine toxicology where very dilute urine may give false negative readings for low amounts of drug excretion.

## URINE CREATININE DAILY EXCRETION

The daily creatinine excretion is used to assist with the completeness of a 24 hour urine collection. It is not a sensitive tool but prolonged collection, for example including the sample from the night before collection starts, may show a high urine creatinine excretion and incomplete collection may show a low daily creatinine excretion. The daily creatinine output is reasonably stable (+/- 20%) so variations in daily creatinine excretion in 24 hour urine samples from the same patient are likely to indicate over or under collection of one or more of the samples.