

Urinalysis



This activity takes about 10 mins plus an introduction and also requires about 20mins prep time.

Intro:

This activity gives the audience the opportunity to carry out a simple dipstick test that demonstrates the effectiveness of point of care testing (POCT).

The Science:

Urine is produced by the kidneys, which filter waste substances out of the blood, help regulate the amount of water in the body, and conserve proteins, electrolytes, and other compounds that the body can reuse. Anything that is not needed is excreted in the urine. Urinalysis is a simple, quick and cost effective test carried out by GPs, outpatient clinics and hospital wards. Often substances such as glucose and protein are found and tested in urine before a patient is aware they are ill. A change in urine pH can also be an indicator of uncontrolled diabetes or urinary tract infections. Urinalysis can also potentially pick up on metabolic disorders and kidney problems. POCT is vital in order to highlight any issues and indicate further tests required to provide a diagnosis.

What you will need:

Urine 1: 500ml camomile tea (brewed until yellow) + 1 sachet/5g bicarbonate of soda.

Urine 2: 500ml camomile tea (brewed until yellow) + 25ml lemon juice.

Urine 3: 500ml camomile tea (brewed until yellow) + 10g glucose powder + 1 tsp protein powder.

Cups/containers

Timer

Pipettes

Indicator reagent (1/2 chopped red cabbage, blend with 500ml of water then strain - the liquid is the indicator)

Universal pH strips

Dirui 5 Parameter Professional GP Urinalysis Multisticks Urine Test Strips.

Instructions:

Label 2 cups urine 1, and urine 2, then get the audience to pour the mock urine into the corresponding cup.

Using the universal pH strips or indicator reagent see whether the urine is acid/alkali/neutral, discuss the colour changes and how this represents the change in pH. (If using the red cabbage indicator, when it changes to red then the solution is acidic, when it changes to yellow the solution is alkali)

Label a cup as urine 3 and get the audience to pour the mock urine into the cup.

Dip the urine test strip into the mock urine for 60 seconds. When the time is up compare the urine test strip with the chart provided on the urine test strip packaging and discuss the results.