



Urinalysis

Event title	Urinalysis
Venue	Careers Fair
Target audience	Medical students, university students
Learning Outcomes (maximum of 3)	Appreciate development of analysis for patient diagnosis. Role of scientific approach to patient problems using all available resources even if that is ones own senses etc. Pathophysiology of polyuria.
Age range	18+ - could be adapted for younger audiences if treated more like a demonstration rather than a quiz.
How was the event advertised?	Was a deanery wide careers event, so advertised via the deanery.
Number attending	Approx 200 junior doctors and medical students with a very few medical science students.
Booking required?	No - none of resources too expensive so not too much wastage and can demonstrate to groups if very well attended.
Length of event	Was an all day event.
Refreshments provided?	Yes had some sweets on the table, they attract people over.
Equipment needed	Handout sheet, urine specimen pots, fake urine (sweet and insipid) – optional extra of urine dip sticks if required.
People needed	A demonstrator.
Printed material used	Yes, can give verbal instructions then just a handout. If using urine dipsticks then a copy of the instructions and method e.g. pack insert.
Room set up	A table – decorated to attract people over.
Event programme	The event was set up with a separate room with lectures then several side rooms with tables for each specialty.
Possible variations	Done as a quiz or a demonstration. Could extend to actually demonstrate the presence of glucose on urine dip or just discuss the role of pathology replacing crude tests with more scientific methods and the background yet fascinating role laboratories play in patient diagnosis and method development.
What did the audience particularly like?	Participation.
What surprised the audience?	Finding a chat with a pathologist interesting, history of analytical science.
What else would	They liked the sweets and leaflets from the college (and



the audience have liked?	the bugs). Those whose interest were piqued wanted information about competition ratios, details on what the local training was like etc – therefore be prepared to answer, know the local training director etc.
How much preparation was involved?	Minimal – just need to get your resources together.
Any other comments?	Attracting people over in the first place to talk to you is key.
Images	See below
For more information please contact	Dr Kate Shipman, kate.shipman@doctors.net.uk

Case/participant instructions:

Patient presents complaining of polyuria > 4 L a day. You have two urine samples representing a patient with diabetes insipidus and diabetes mellitus. Work out which one is which without any extra equipment.

Discussion/answers: can use this as a prompt of things to discuss. You can get them to actually taste the 2 urine samples or at least talk about things they could do such as taste, smell, compare by eye etc.

History of urine testing:

1500BC Hindu writings note ants attracted to urine of people with an emaciating disease.

Arataeus 200 ad– diabetes = siphon



Mellitus = sweet vs insipid added by Thomas Willis in 17th century

Therefore urine testing was based on observation and taste.



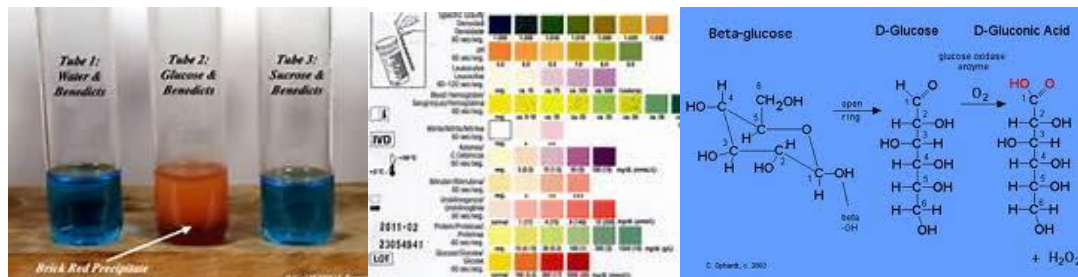
The Royal College of Pathologists

Pathology: the science behind the cure



Benedict – copper solution detecting reducing sugars.

Focus now on role of modern laboratories and scientific approach to patient diagnosis. Note that urinalysis retains the physician's ability to make bedside diagnoses.



Urine samples:

- Need 2 urine specimen tubes.
- For the diabetes insipidus sample put a drop of yellow food colouring into water. No need to make it 'insipid' as only needed to contrast the sweet specimen. Don't overcolour as meant to be dilute urine.
- For the diabetes mellitus could use straight apple juice as looks fairly like urine (more concentrated perhaps than expected but you could claim patient is dehydrated). Alternatively boil water in a saucepan with sugar to reach desired sweetness then when cool add a dash of yellow food colour.
- If you can convince some people to taste it you may need some replacement samples.
- As an added extra you can then demonstrate or let them dip the urines and discuss the use of enzymes/dyes/colours etc. to detect analytes.