

### Some Practical Points in Urine-Testing for Nurses.

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IN many hospitals the important duty of testing a patient's urine devolves upon the nurse. She will only test qualitatively, since, as a rule, quantitative estimations of the different pathological constituents will not be required of her, except in some instances. Cases of disease of any part of the urinary tract will, obviously, require careful daily testing and charting, but the urine of all patients, no matter for what they are admitted, should without fail be carefully tested on admission, and anything abnormal reported.

A plan of examination such as the following will be found useful: (1) Quantity, (2) Odour, (3) Appearance, (4) Specific Gravity, (5) Reaction (6) Presence of any abnormal substance.

(1.) *Quantity*.—About 40-60 oz. of urine are passed normally, by an adult, in the twenty-four hours. This may be (a) increased, by previous drinking before admission, in diabetes mellitus and insipidus, in hysteria, in the early stages of that form of Bright's disease known as granular kidney, and as the effect of a course of diuretic medicine. It may be (b) diminished, in all febrile states, in acute nephritis, in diarrhoea, and in the last stage of chronic Bright's disease. The condition known as "anuria," or suppression of urine, whether temporary, such as is likely to occur after an operation for piles or for radical cure of hernia, or permanent, which may be a complication of renal disease, and may indicate commencing uræmia, is most important, and should be immediately reported.

(2.) *Odour*.—If foul and ammoniacal, cystitis is generally indicated. In diabetes it is sweetish. Certain drugs and foods impart characteristic odours to urine. Thus, turpentine gives it a smell of violets, and copaiva, asparagus, etc., can be at once recognized.

(3.) *Appearance*.—Note if pale and colourless, as in diabetes or hysteria; if high coloured, as in febrile states; if reddish or "smoky," as in Bright's disease, scarlatinal nephritis, renal calculus, etc.; if dark olive green, as in jaundice; if blackish, as in carbolic acid poisoning. The presence and nature of deposits may be more readily observed if the specimen of urine

be collected in a conical glass vessel, than in a cylindrical one.

(4.) *Specific Gravity*.—If high, *i.e.* 1.025 and upwards, as in diabetes, and very concentrated urine. A low sp. gr. is generally found when the quantity is increased. If there be not enough urine to test, when in the ordinary conical vessel, it may be transferred to a large test-tube, or to the small cylindrical glass in which the urinometer is kept; the sp. gr. can usually be taken in this manner. Should there still be insufficient to make the instrument float, it can be taken by dropping into the urine the little numbered "specific gravity balls," which are used at some hospitals, that one which neither sinks nor floats indicates the sp. gr. of the urine.

(5.) *Reaction*.—If alkaline, as in cystitis, or very acid, as in febrile states, etc. It can be best taken, not by plunging a piece of blue litmus haphazard into the urine, or worse still, by dropping it in, but by taking one piece of red and blue litmus, placing them on the testing table side by side, and allowing *one drop* to fall in the centre of each piece from a glass rod or a pipette dipped into the urine. In this way the contrast of colours can be much more easily recognised.

(6.) *Presence of Any Abnormal Substance*.—  
(i.) *Albumen*.—The Heat Test.—Fill a clean, dry test-tube three-quarters full with the urine. If it be not acid, add *three drops* of dilute acetic acid, hold the tube by the bottom, and boil the upper layer of the urine by keeping that part in the flame of the spirit-lamp or Bunsen burner, revolving the tube on its long axis to ensure the heat being uniformly distributed. If after boiling for at least one minute, a cloudiness or coagulum appears, remove the tube from the flame and carefully add three drops of dilute acetic acid. If the cloudiness or precipitate now disappears, it is due to phosphates; if the acid does not dissolve the precipitate, it indicates that albumen is present. The next test will confirm this.  
*The Nitric Acid Test*.—Into a clean test-tube pour about half an inch of strong nitric acid. Hold the tube in a slanting direction, and with a pipette allow the urine to drop slowly on to the surface of the acid. A white ring at the junction of the two fluids indicates the presence of albumen. If the patient has been taking copaiva, a white ring also appears, but this is dissolved by heat.

(ii.) *Sugar*.—The reagent most commonly

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