Name: Yahaya Faith Oluwadamilola

Matric Number: 18/MHS02/196

Department: Nursing Science

Course code: PHS 212

**Characteristics of Urine**

* Color

The color of urine is determined mostly by the breakdown products of red blood cell destruction. The “heme” of hemoglobin is converted by the liver into water-soluble forms that can be excreted into the bile and indirectly into the urine. This yellow pigment is urochrome. Urine color may also be affected by certain foods like beets, berries, and fava beans, and certain medications. Dehydration produces darker, concentrated urine.

* Specific gravity

Specific gravity is an easy way to estimate the osmolarity of a urine sample. The specific gravity of urine is a ratio of the density of a urine specimen to water.  The density of water is 1.000 g/ml. Because urine samples always contain solutes, even a urine sample that is very pale in color will have a density that is slightly higher than water. The urine sample of a dehydrated person will be darker in color, and will have a density that is substantially higher than water, as it will contain a great deal of solutes. As a result, the specific gravity of a well-hydrated individual’s urine will be roughly 1.003, whereas the specific gravity of a dehydrated individual’s urine will be closer to 1.032.

Laboratories can now measure osmolarity directly, which provides a more accurate assessment of the urine specimen. Remember that osmolarity is the number of osmoles or milliosmoles per liter of fluid (mOsmol/L). Urine osmolarity ranges from a low of 50–100 mOsmol/L to as high as 1200 mOsmol/L H2O.

* Odor

Fresh urine often has very little odor. Most of the ammonia produced from protein breakdown is converted into urea by the liver, so ammonia is rarely detected in fresh urine. The strong ammonia odor you may detect in bathrooms or alleys is due to the breakdown of urea into ammonia by bacteria in the environment. About one in five people detect a distinctive odor in their urine after consuming asparagus; other foods such as onions, garlic, and fish can impart their own aromas! These food-caused odors are harmless.

* pH

The pH (hydrogen ion concentration) of the urine can vary more than 1000-fold, from a normal low of 4.5 to a maximum of 8.0. A urine specimen is typically slightly acidic with a pH of roughly 6.0, but pH can vary substantially with an individual’s diet. Individuals who consume a lot of meat and protein will tend to have a more acidic urine specimen (pH below 6.0). Individuals with diets low in protein and high in fruits and vegetables (such as vegan diets) will tend to have an alkaline urine specimen (pH above 7.0). Ideally, urine should be acidic, as a lower pH will limit bacterial growth and urinary tract infections.

* Urine volume

Urine volume varies considerably. The normal range is one to two liters per day. The kidneys must produce a minimum urine volume of about 500 mL/day to rid the body of wastes. Output below this level may be caused by severe dehydration or renal disease and is termed oliguria. The virtual absence of urine production is termed anuria. Excessive urine production is polyuria..

**Components of Urine**

Urine is an aqueous solution of greater than 95% water, with a minimum of these remaining constituents, in order of decreasing concentration:

Urea 9.3 g/L.

* Chloride 1.87 g/L.
* Sodium 1.17 g/L.
* Potassium 0.750 g/L.
* Creatinine 0.670 g/L .
* Other dissolved ions, inorganic and organic compounds (proteins, hormones, metabolites).