METHODIST HOSPITAL
PATHOLOGY CENTER

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TECHNICAL BULLETIN

April 19, 2018

TESTOSTERONE PANEL FOR ADULT MALES

Effective April 19th, 2018, the **Testosterone panel** for males above 14 years of age will be performed at Methodist Pathology Center, providing better turnaround time and cost efficiency.

The testosterone panel includes:

- Total Testosterone (TST)
- Sex Hormone Binding Globulin (SHBG)
- Free Testosterone
- Percent (%) Free Testosterone.
- Albumin (for calculation purposes)

Clinical Information:

Testosterone is the main sex hormone (androgen) in men. It is responsible for male physical characteristics and is mainly produced by Leydig cells in the testis. It is also produced in small amounts by the adrenal glands. Testosterone production is stimulated and controlled by luteinizing hormone (LH). Testosterone levels are diurnal, peaking in the early morning hours, with the lowest levels in the evening. Levels also increase after exercise and decrease with age.

About two-thirds of testosterone circulates in the blood bound to sex-hormone binding globulin (SHBG) and slightly less than one-third bound to albumin. A small percent (less than 4%) circulates as free testosterone. The free plus the albumin-bound testosterone is the bioavailable fraction, which can act on target tissues.

Measurement of total testosterone (TST) provides adequate information for most patients. However, in certain cases, for example when the level of SHBG is abnormal, a test for free testosterone may more accurately assess the presence of a medical condition.

Free Testosterone is calculated (not a direct measurement) using measured SHBG, total TST and albumin. Percent (%) Free Testosterone is calculated using measured SHBG and total TST.

Availability:

The testosterone panel will be performed 24 hours a day/7 days a week. **The testosterone panel is for adult males** and is NOT available for females and males <14 years of age. For males under the age of 14 and females, please use **Testosterone Total and Free Females or Children** which is a send out test performed at a reference laboratory (ARUP).

Specimen requirements and stability:
2.0 mL Serum Separator tube (Gold top) or Lithium heparin plasma tube (Light green top).
Specimen is stable after separation from cells for 48 hours at ambient temperature, for 1 week refrigerated, and for 2 months frozen.

REFERENCE RANGES:

Total Testosterone, Male:

14-15 years:	33-585 ng/dL
16-17 years:	185-886 ng/dL
18-39 years:	300-1080 ng/dL
40-59 years:	300-890 ng/dL
60 years and older:	300-720 ng/dL
Tanner Stage IV:	165-854 ng/dL
Tanner Stage V:	194-783 ng/dL

SHBG Reference Interval:

1-30 days	13-85 nmol/L
31-364 days	70-250 nmol/L
1-3 years	50-180 nmol/L
4-6 years	45-175 nmol/L
7-9 years	28-190 nmol/L
10-12 years	23-160 nmol/L
13-15 years	13-140 nmol/L
16-17 years	10-60 nmol/L
18 years and older	11-80 nmol/L
Tanner Stage I	26-186 nmol/L
Tanner Stage II	22-169 nmol/L
Tanner Stage III	13-104 nmol/L
Tanner Stage IV	11-60 nmol/L
Tanner Stage V	11-71 nmol/L

Free Testosterone, Male:

14-15 years:	3-138 pg/mL
16-17 years:	38-173 pg/mL
18 years and older:	47-244 pg/mL
Tanner Stage IV:	35-169 pg/mL
Tanner Stage V:	41-239 pg/mL

Percentage Free Testosterone:
Adult males $\geq$ 14 yrs.: 1.6-2.9%

Please direct any questions to the Pathology Center Client Services (402) 354-4541, Dr. George Bedrnicek at (402) 955-5528 or Dr. Deborah Perry at (402) 354-4559.