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What Am I Going To Discuss With You

PSA

→ *What* is PSA ?

→ *Where* is PSA Performed ?

→ *Who* Performs PSA ?

→ *Why* is PSA performed ?

→ *When* is PSA performed ?

→ *How* is PSA Performed ?

What is PSA ?

What is PSA ?

Protein produced by prostate cells

What is PSA ?

- Name is misleading because PSA is found in:
- **Non-prostatic normal tissue**
 - *colon, kidney, liver, parotid gland, thyroid...*
- **Tumor tissues**
 - *breast cancer tissues, breast cancer cells*

What is PSA ?

- In females:
 - *colostrum* - milk secreted for a few days after birth rich in protein and antibodies (newborn's source of antibodies at birth)
 - *breast cyst fluid*
 - *amniotic fluid*
- “Female Prostate” - *Skene's glands*

What is PSA ?

Function

- PSA produced in the prostate is secreted into the seminal fluid
- Liquefies seminal fluid which results in increased sperm motility

What is PSA ?

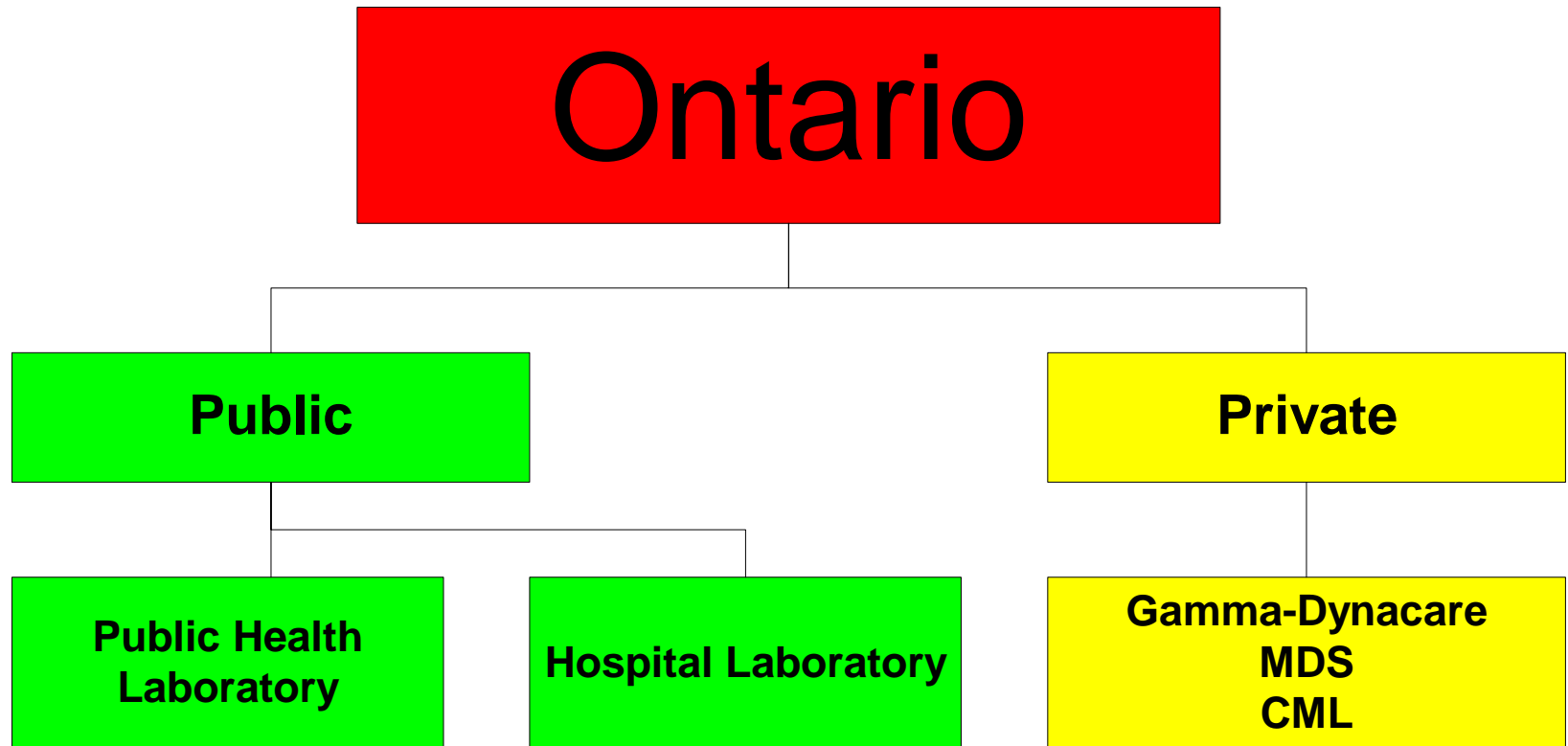
3 Forms

- PSA - bound alpha -1-antichymotrypsin
- Free PSA - not bound to anything
- PSA - bound alpha 2 macroglobulin
 - Not Detected

Total PSA measures 2 forms of PSA

- *Where* is PSA Performed ?

Where is PSA Performed ?



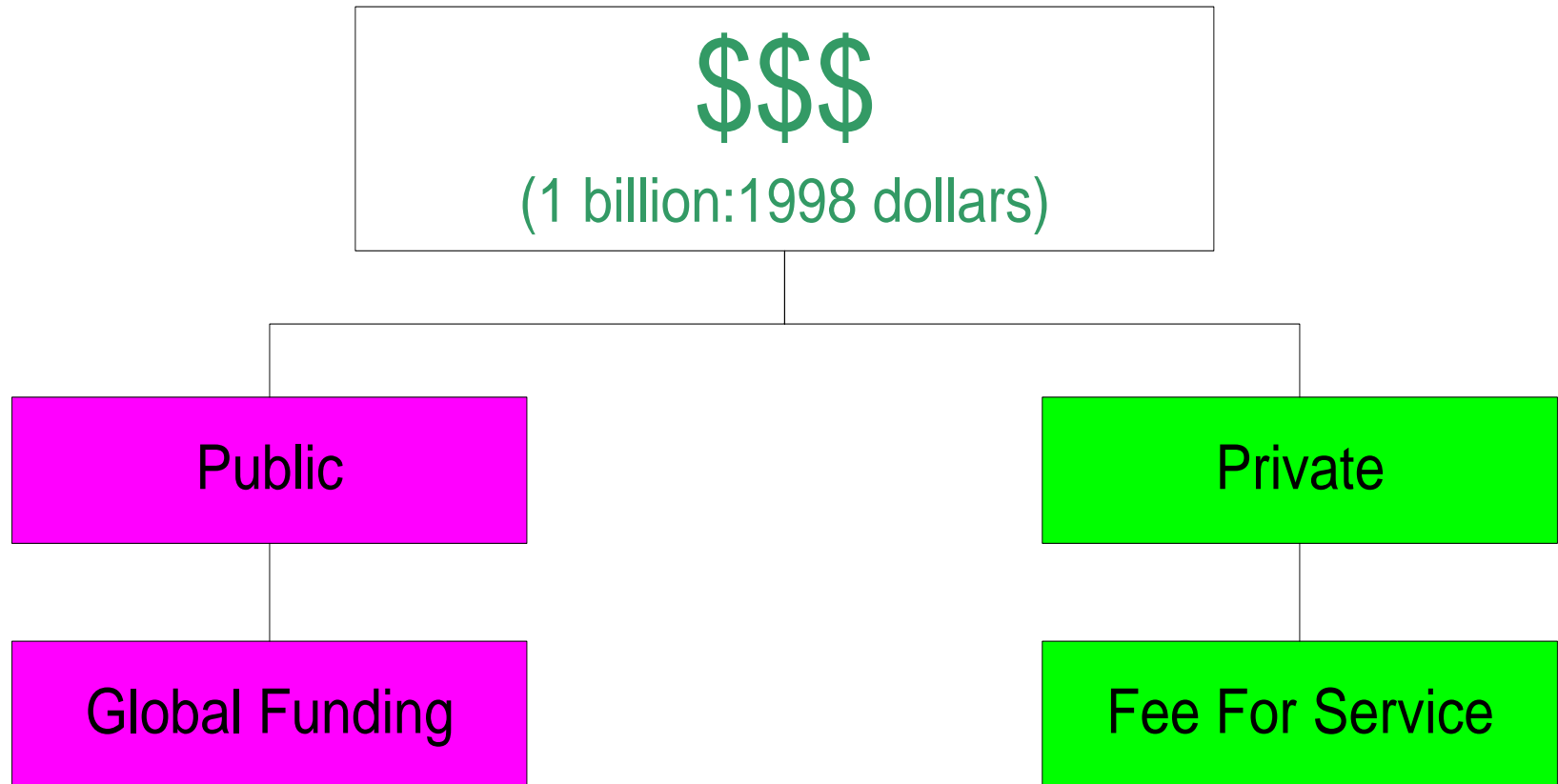
Where is PSA Performed ?

- Seventy percent of a Patient's medical file is comprised of medical laboratory test results.
- Over 70% of the medical decisions made and the treatments are based on those test results.

Where is PSA Performed ?

- What's The Difference?
 - *Public vs Private*
- How They Get Paid!!!!!!

Where is PSA Performed ?



Where is PSA Performed ?

Global Funding:

- Global (or Base) funding provided **annually**.
- Allotments are based primarily on past allocations and annual adjustments to reflect changes in costs.
- Special program funding - e.g., cardiovascular surgery, renal dialysis services

Where is PSA Performed ?

- Simply, hospitals are provided funds to run their institutions
- Once those funds have been depleted, they operate at a deficit
- Similar to one's Line of Credit - once you reach your max, you have your limit extended to pay your bills

Where is PSA Performed ?

Fee-For-Service

- *PMLs*: paid for the service **as it is provided**
- Measured in *LMS* Units
- **L** - Labour
- **M** - Materials
- **S** - Supplies

Where is PSA Performed ?

- 1 LMS Unit = \$0.517
- **HDL Cholesterol**
 - **18 LMS Units**
 - **\$9.31**

L103	Glucose tolerance test in pregnancy (see Preamble, paragraph 4)	24
L114	Glutathione	20
L115	Glycoproteins	60
L093	Glycosylated hemoglobin - HgbA _{1c}	22
L116	Gold	40
L119	Hexosaminidase A	15
L132	Hemoglobin A ₂ by chromatography	25
L121	5HIAA screening - U	9
L122	5HIAA quantitation - U	50
L117	High density lipoprotein cholesterol	18
L118	Histamine	90
L123	Homogentisic acid (homogentisate) - qualitative	9
L101	Homovanillic acid (homovanillate), HVA	60
L124	Hydroxybutyrate dehydrogenase	10
L125	17-Hydroxycorticosteroids - U	34
L126	17-Ketogenic steroids - U	40
L127	17-Ketosteroids, total - U	34
L128	17-Ketosteroids, fractionated - U	80
L129	Hydroxyproline - B	25
L130	Hydroxyproline, total - U	90
L131	Hydroxyproline, total and free - U	150
L135	Inulin clearance test	40
L136	Inulin	40
L142	Intestinal enzymes - qualitative	6
L143	Intestinal enzymes - quantitative	22
L137	Iodine protein bound	21
L139	Iron, total -with iron binding capacity and per cent saturation - not to be claimed with L329	34
L141	Iso-citric dehydrogenase	15
L145	Lactic acid (lactate)	27

Who Performs PSA ?

Who Performs PSA ?

Medical Laboratory Technologists - MLT

– Healthcare Professionals

- 3 Year Post Secondary Education
- Schools:
 - The Michener Institute - Toronto
 - St. Clair College - Windsor
 - St Lawrence College - Kingston
 - Cambrian College - Sudbury

Who Performs PSA ?

- “laboratory technologist” means a person who under general supervision performs tests which require the exercise of *independent judgment*
- “laboratory technician” means a person who under direct supervision performs laboratory tests which *require limited technical skill and responsibilities*

Who Performs PSA ?

- **College of Audiologists and Speech-Language Pathologists of Ontario (CASLPO)**
- **College of Chiropodists of Ontario**
- **College of Chiropractors of Ontario**
- **College of Dental Hygienists of Ontario**
- **Royal College of Dental Surgeons of Ontario**
- **College of Medical Laboratory Technologists of Ontario**
- **College of Medical Radiation Technologists**
- **College of Midwives of Ontario**
- **College of Nurses of Ontario**
- **Ontario College of Pharmacists**
- **College of Physicians and Surgeons of Ontario**
- **College of Physiotherapists of Ontario**

Who Performs PSA ?

- *Physician: orders the tests*
 - interpretation - **Clinical**
- *MLT: performs the tests*
 - interpretation - **Technical**

Who Performs PSA ?

MLT

- *Knowledge*
 - Theoretical/Technical
- *Skill*
 - Technical/Communication
- *Judgement*
 - Analytical Decision Making

Why is PSA performed ?

Why is PSA performed ?

- 2 Reasons:

- **Diagnose**

- **Monitor Disease/Treatment**

When is PSA performed ?

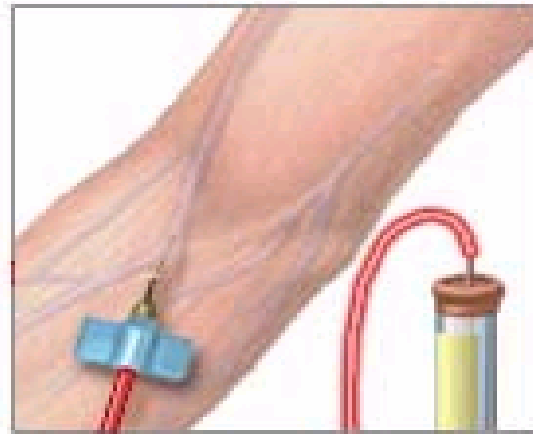
When is PSA performed ?

- Most labs perform PSA on a daily basis
- Upon receipt of specimens PSA testing commences
- *TAT - Turn-Around-Time*
 - 24 hours from receipt of specimen result is available
 - 48 hours from receipt of specimen, Physician has a hard copy of results

How is PSA Performed ?

How is PSA Performed ?

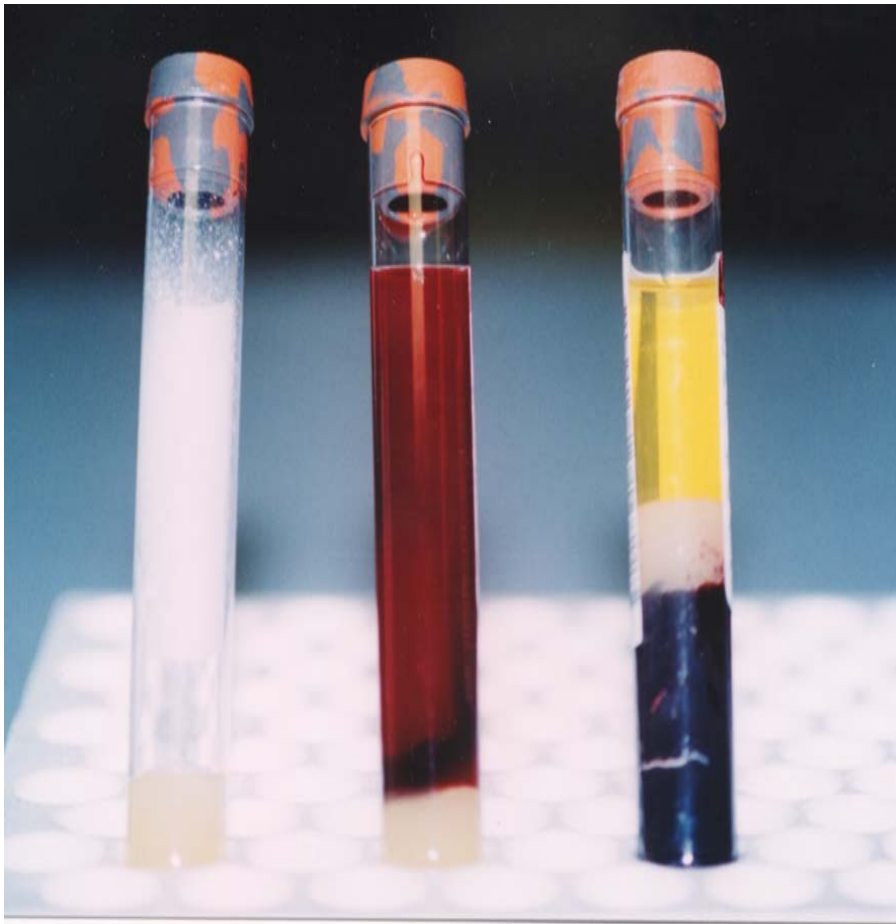
Tourniquet is applied
and area is disinfected



Needle is introduced
into vein, blood is drawn
into vial and analyzed



How is PSA Performed ?



- Left
 - silicone coated
- Middle
 - **whole blood**
- Right
 - centrifuged **whole blood**
 - top = **serum**
 - middle = inert material
 - bottom = cells

How is PSA Performed ?

- Serum + coated particles that bind PSA
- Excess PSA is washed away
- Trigger Solutions result in *chemiluminescence*

How is PSA Performed ?

- What is chemiluminescence?
- **Chemi** - has to do with chemicals
- **Luminescence** - gives off light
- *Chemiluminescence* - emits light via a chemical reaction.

How is PSA Performed ?



- For example, in the firefly, an enzyme called luciferase (a name meaning "light-bearing") triggers a reaction that produces energy emitted as light--the flashing beacon from the insect's lower abdomen.

Things To Remember

- *Avoid large meals*
 - recommend fasting specimen 6-8 hours
 - lipemic (milky) serums

Things To Remember

- *Rigorous physical activity affecting the prostate, such as bicycle riding, may cause a temporary rise in PSA levels*

Things To Remember

- ***DRE - Digital Rectal Examination***
 - *recent studies have shown that DRE does not increase PSA*

Things To Remember

- ***Chemotherapeutic Drugs*** *may increase or decrease PSA levels*
 - *cyclophosphimide*
 - *methotrexate*

Things To Remember

- *Prostate manipulation by biopsy or resection of the prostate will elevate PSA concentrations*
- *Have PSA done prior to surgery*
- *Have PSA done 6 weeks after manipulation*

Things To Remember

- *PSA may temporarily rise due to other prostate conditions such as infections*

Things To Remember

- *Stick to the same lab*
 - PSA can vary due to differences in methods
- *Keep diary of your result*
 - This result belongs to you

What We Discussed

→ *What* is PSA ?

Protein found in men and women

What We Discussed

→ *Where* is the PSA Performed ?

Medical Laboratories - Public & Private

What We Discussed

→ *Who* Performs the PSA ?

Medical Laboratory Technologists

What We Discussed

→ *Why* is the PSA performed ?

*To Diagnose & Monitor
Disease/Treatment*

What We Discussed

- *When* is PSA performed ?

Most labs performing this test in Ontario TAT from receipt of specimen in the lab = 24 hours

What We Discussed

- *How* is PSA Performed ?
- *Chemiluminescence*

Be Informed

*Don't Be Afraid
to Ask Questions*

Any Questions:

Do Not Hesitate To Contact Me:

1-800-668-2714 (210)