PAP smear

(Papanicolaou Test)
PAP test

• Is a screening test to prevent/detect cancerous processes in endocervical canal
• It reduces the mortality caused by cervical cancer up to 80%

PAP test

• The test was invented by and named after the Greek doctor Georgios Papanikolaou in 1928
PAP test

• Aurel Babeş of Romania independently made similar discoveries in 1927

Koss, Leopold G. M.D.; (January 2003); Aurel Babes; International Journal of Gynecology Pathology; Volume 22 - Issue 1 - pp 101-102
PAP test

- Papanicolaou's name was repeatedly submitted to the Nobel Committee in 1950s and rejected every time.
- Because the investigator discovered Babeş' contributions that had never been cited by Papanicolaou and duly reported this fact to the Committee, which then rejected Papanicolaou's Nobel award.
**Conventional Pap** - In a conventional Pap smear, samples are smeared directly onto a microscope slide after collection.

**Liquid based cytology** - The Pap smear sample is put in a bottle of preservative for transport to the laboratory, where it is then smeared on the slide.
PAP test

- Abnormal results are grouped as follows:

- Atypical squamous cells of undetermined significance (ASCUS) (typically 2–5% of Pap results)
  (atypical cells of uncertain significance)
• Low-grade dysplasia (LSIL) (about 2% of PAP results)

precancerous changes are likely to be present
But spontaneously regress without ever leading to cervical cancer
PAP test

- High-grade dysplasia (HSIL) (about 0.5% of PAP results)

The risk of cervical cancer is higher
PAP test

- Carcinoma in situ (CIS)

- Atypical glandular cells (AGC)
  Cell changes that may lead to cancer are seen in cervical canal or inside the uterus
PAP test

Due to American Cancer Society Screening should start:

• 3 years after the first sexual intercourse or
• At the age of 21

PAP test

- Repeat every 3 years until the age 30

- Over the age 30 with both normal PAP smear and HPV test, every 5 years

PAP test

• Precaution:

Do not do for 24 hours before the test:

• Douche (douching should never be done)
• Have sexual intercourse
• Take a bath
• Use tampons
• Menstrual blood may make the Pap smear results less accurate
HPV
Human Papilloma Virus

HPV is a DNA Virus. Its infection is a cause of nearly all cases of cervical cancer.

HPV

- Worldwide Infection prev.: 9-13% = 630 million
- Prevalence of clinically pre-malignant infections: 28-40 Million

[Image of HPV infections: Cutaneous HPV inf., Genital HPV inf., Throat cancer, Papilloma]

HPV

Transmission:

• Parental
• Sexual (genital infections)
• Blood products

• Over 120 HPV types have been identified

• HPV-5 is discovered in 1978 by Stefania Jablonska and Gerard Orth
HPV

• carcinogenic "high-risk" sexually transmitted HPVs are:

• Types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73, and 82

HPV

- 95% of infected women clear HPV within 18 month
- Prolonged infection with a high-risk type can lead to precancerous developments after 10-15 Years

HPV

- Two Vaccines available:
  - 1. Gardasil – marketed by merck
  - 2. Cervarix – marketed by GlaxoSmithKline
- Both cover the infection with type 16 and 18
- Gardasil also protects against types 6 and 11, which cause 90% of genital warts
Thanks for your attention

Prof. L. G. Koss: “…the lesson is clear: always cite papers written by your predecessors and contemporaries, if you ever wish to obtain the Nobel Award”