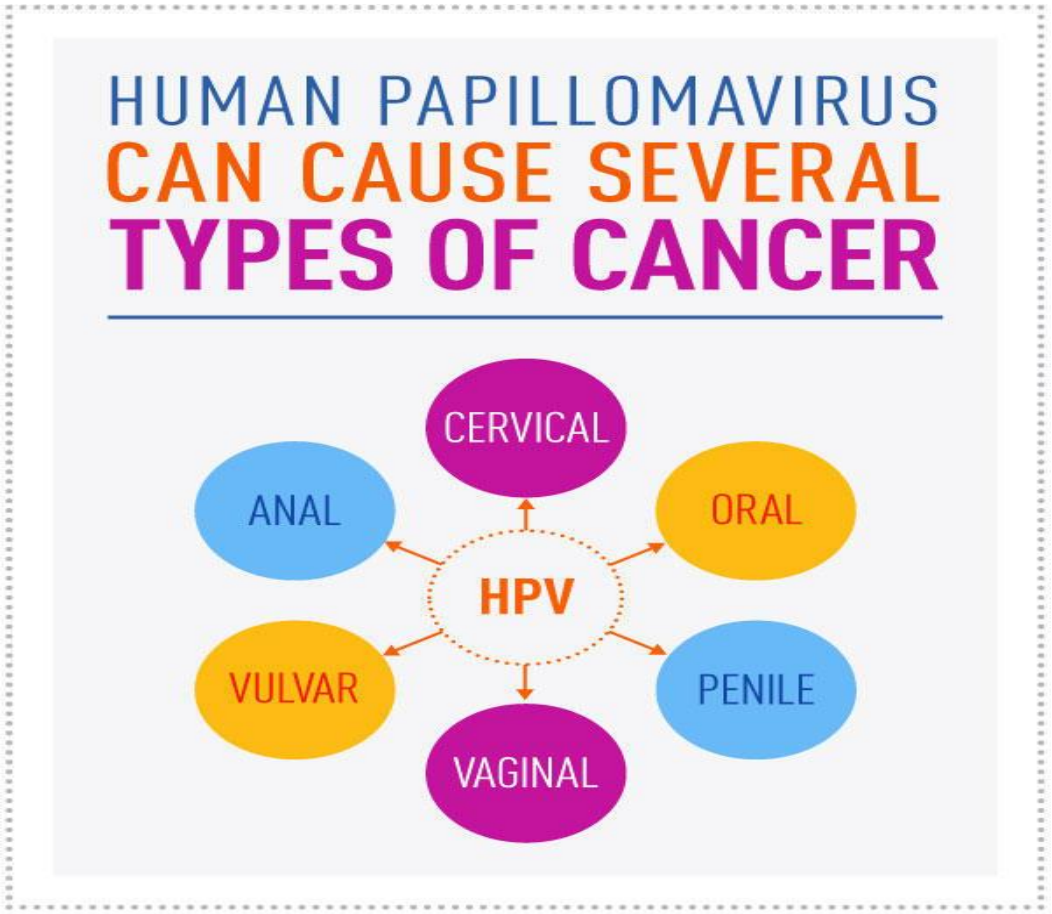
# Prevalence of human papilloma virus (HPV) and its genotypes distribution among Egyptian Females

**Presented By**
**Dr. Shimaa Ahmed Abdel Salam**
**Associate Professor of Medical Microbiology &Immunology**
**IPC Consultant**
**IFBA Certified Professional ,Bio Risk Management**

## Can HPV Cause serious disease?

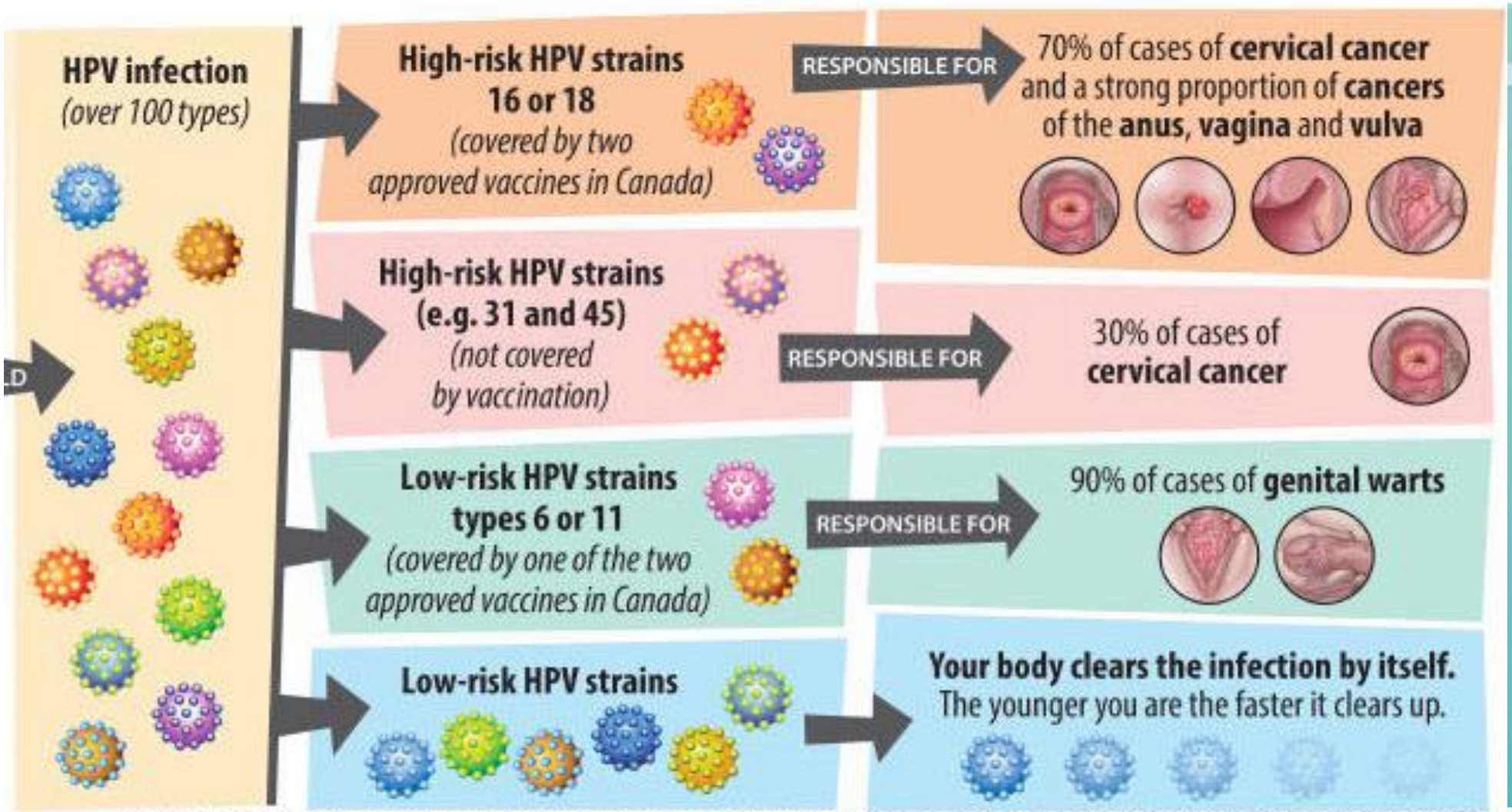
Human papillomavirus (HPV) is the most common viral infection of the genital tract and the causative agent of cervical cancer and genital warts .

More than 100 types of HPV exist.

# HPV
## 30–40 Genital Types

Some types are more likely to cause complications than others.

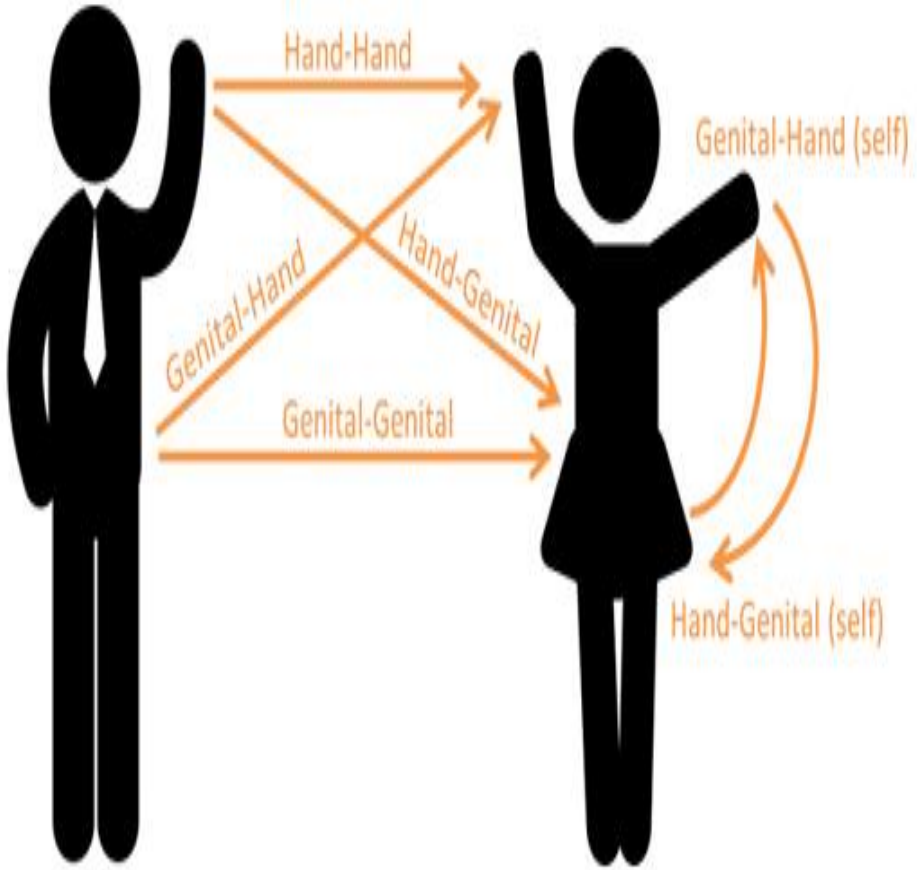
The epidemiological classification of cervical cancer-associated HPV types classifies 15 HPV types as carcinogenic or high-risk types as (16, 18) and 12 HPV types as low-risk types as (6, 11).




# Did you know...

Cervical Cancer is the 4th leading cause of cancer death in women worldwide

# How do you get HPV?




Mode of HPV infection transmission/acquisition in men and women (Source: McGhill Channels 2019)

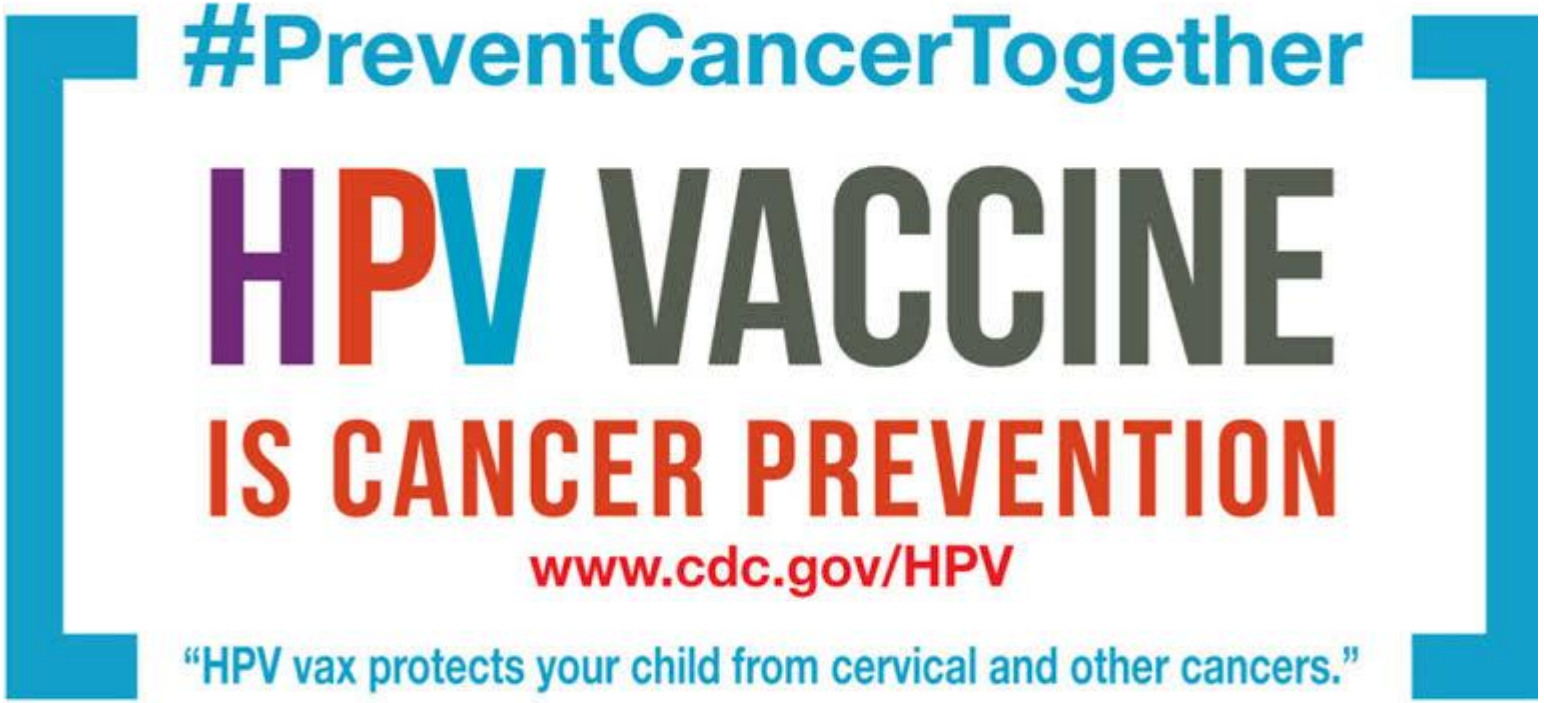
- skin-to-skin contact
- Sexual contact.
- From an infected mother to the neonate during childbirth causes warts in the mouth and in the respiratory tract, especially on the larynx, of the infant.

**Are there any occupational hazards??**

**Transmission of human papillomavirus (HPV) through surgical smoke from lasers and electrosurgery has been documented.**

- **In 1990, a 44-year-old laser surgeon developed laryngeal papillomatosis after administering laser therapy to patients with anogenital condylomas due to HPV infection. In situ DNA hybridization of the doctor's laryngeal papilloma tissues revealed HPV types 6 and 11, similar to those found in the patients.**
- **Rioux et al. reported that a 53-year-old male gynecologist who had performed LEEP for over 20 years on more than 3,000 cases of cervical and vulvar dysplasia developed HPV 16-positive tonsillar squamous cell carcinoma.**

# Can HPV be prevented?



• Fortunately, HPV infection and its complications can be prevented by the **bivalent HPV vaccine** against (16 and 18), the **quadrivalent HPV vaccine** against (6, 11, 16 and 18) and **nonavalent HPV vaccine**

# Prevention of occupational hazards

**It is safest to treat surgical smoke from the treatment of HPV-related lesions as containing potentially infectious HPV particles, and to take all reasonable measures to minimize OT staff smoke exposure.**

**Precautions should ideally include a triple combination of:**

**(1)local exhaust ventilation, general room ventilation and**

**(2) full personal protective equipment including a fit tested particulate respirator of at least N95 grade.**

**There is insufficient evidence at present to recommend HPV vaccination in OT staff**

- **Although these vaccines are licensed in Egypt, they are not included in the national immunization program**
- To encourage vaccination program, **baseline epidemiological data are required to measure the benefits of implementing a nationwide policy for HPV vaccination.**

ORIGINAL ARTICLE

# Prevalence of human papilloma virus (HPV) and type distribution of genotypes (6, 11, 16 and 18) among Egyptian women

[1]Sahar A. Ibrahim*, [1]Shimaa A. Abdel-Salam, [2]Mohamed I. Amer, [1]Abeer A. El-Sayed, [1]Rania A. Hassan

[1]Departments of Medical Microbiology and Immunology,
[2]Obstetrics and Gynaecology, Faculty of Medicine, Ain Shams University, Egypt

***Key words:***
***Human papillomavirus, prevalence, multiplex PCR, Egypt.***

****Corresponding Author:***
Sahar Abdel-Rahman Ibrahim
Assistant lecturer of Medical Microbiology & Immunology, Faculty of Medicine, Ain Shams University
Tel : 01121971775

## ABSTRACT

***Background***: *Human papillomavirus (HPV) is the most common viral infection of the reproductive tract and the causative agent of cervical cancer and genital warts.* ***Objectives***: *to study prevalence of HPV infection and type distribution of genotypes (6, 11, 16 and 18) among Egyptian females.* ***Methodology***: *65 Egyptian women were subjected to conventional Pap cytology, HPV DNA testing by polymerase chain reaction (PCR) and genotyping by multiplex PCR for genotypes (6, 11, 16 and 18) during the period from May 2018 until October 2018.* ***Results***: *The prevalence of HPV among participants was (23.1%). only 20% of HPV positive cases, were infected by single HPV genotype and 80% were co-infected by more than one genotype.* ***Conclusion***: *These data expand the knowledge concerning HPV prevalence and type distribution in Egypt which*


- To study the prevalence of HPV and its genotypes distribution (6, 11, 16 and 18) in cervical specimens among a group of Egyptian females.


- This study was conducted on 65 Egyptian women attending gynecological and family planning clinics, Ain Shams university hospital over a five-month period.

**Inclusion Criteria :**

Females aged **>18 years coming for gynecological examination and willing to provide a cervical sample will be enrolled**.

**Exclusion Criteria :**

Females with known diagnoses of **immunosuppression, previous HPV vaccination or hysterectomy will be excluded from the study.**

**Ethical Considerations:**

**Written informed consent** was taken from participants for sample collection, according to the regulation of the Ethical Committee of Scientific research, (Faculty of Medicine - Ain Shams University).

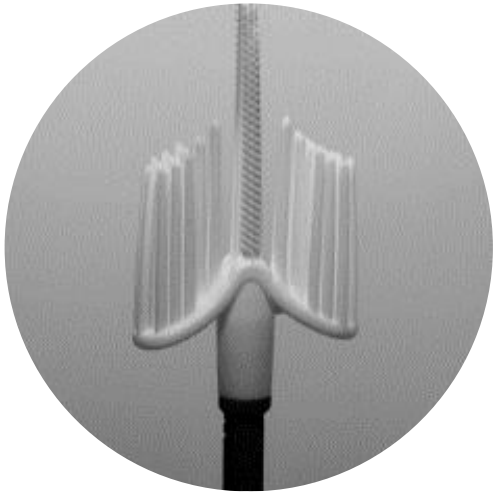
## All participants were subjected to the following:

### 1-History taking including:

• Age, marital status, no of marriages, parity, smoking, contraception, symptomatic partner and the presenting symptoms.

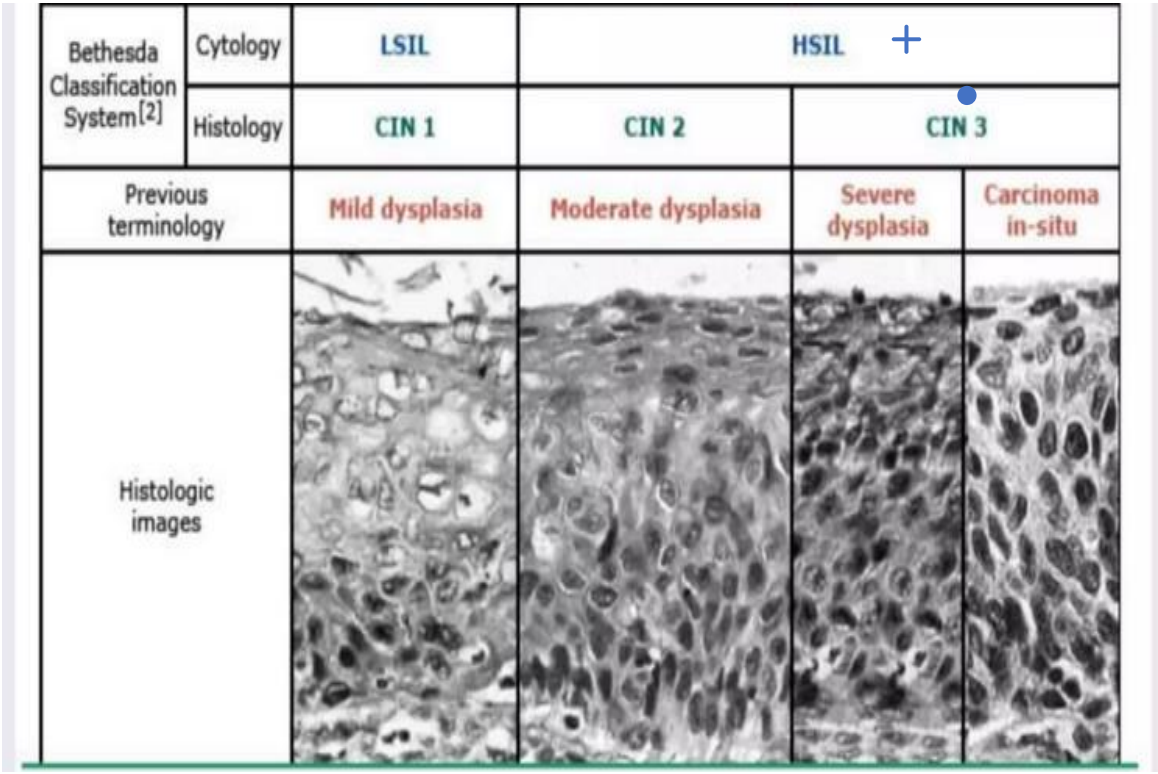
### 2. Specimen collection:

- Cervical cell scrapings were collected by a gynecologist with a cytobrush from the ecto- and endo-cervix of the uterus.
- A slide was prepared for Pap smear cytology and the cytobrush was then placed in RPMI viral transport medium (GIBCO diagnostics, USA), transported to the lab and stored at -80°C until processed for HPV-DNA detection.



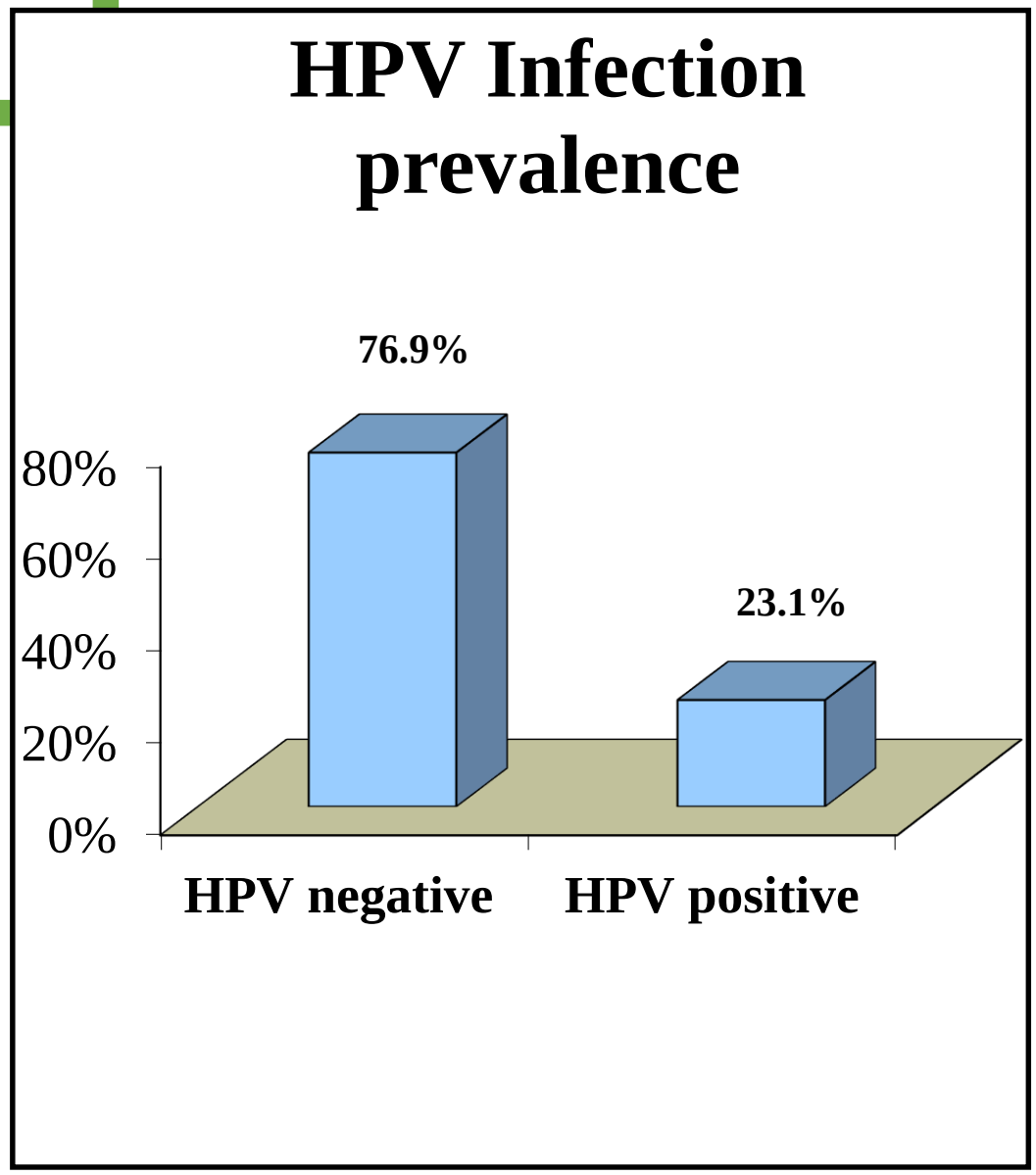
## 3. Cytological examination:

- Cytological examination was performed at the pathology lab and findings were classified according to the 2004 Bethesda classification system.



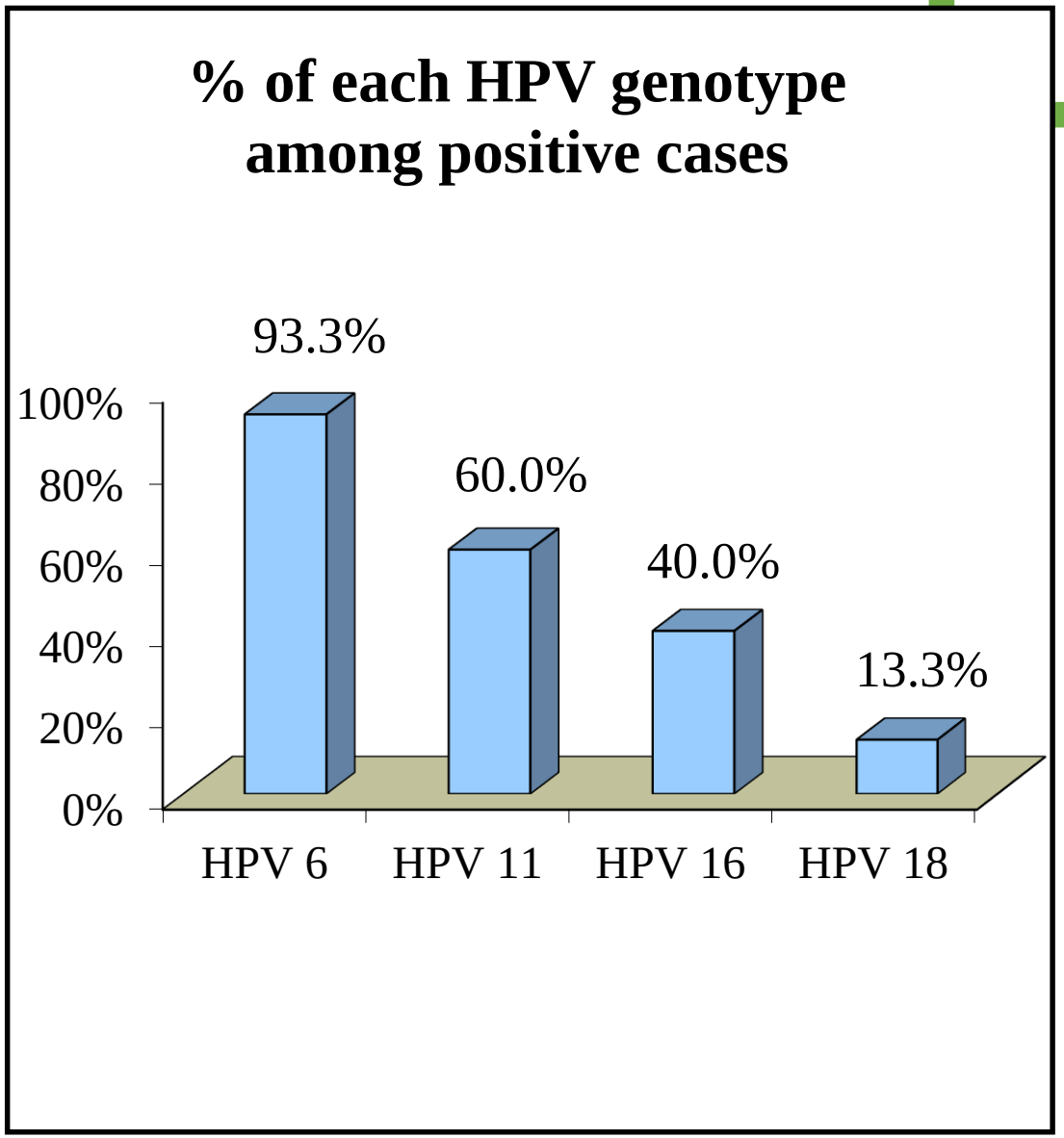

- **4. Detection of HPV-DNA and its genotypes was don by PCR**


RESULTS

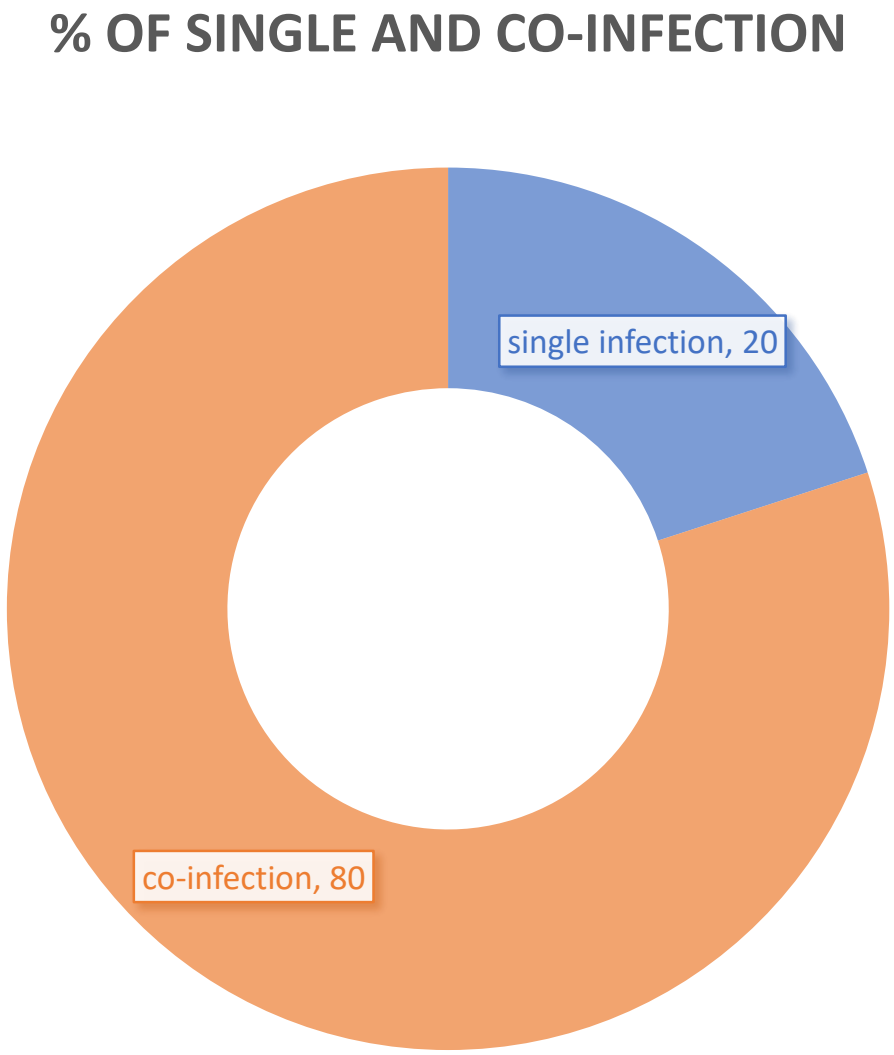



# Prevalence of HPV among the studied group

Percentage of each HPV genotype among positive cases.



- Percentage of single and co-infections within HPV positive women
- HPV 6 was detected in all cases of co-infection.
- One of patients was infected by 3 types (6,16,18)



- **A statistically significant relationship was detected between HPV infection and [age(18-25), no of marriages and partner symptoms (warts)]**

- **A Statistically significant relationship between positive HPV infection and abnormal cytological finding.**

journal homepage: www.elsevier.com/locate/ijid

# Prevalence and type distribution of human papillomavirus among women older than 18 years in Egypt: a multicenter, observational study☆

Mohamed Fadel Shaltout [a,*], Hassan N. Sallam [b], Maged AbouSeeda [c], Fady Moiety [b], Hossam Hemeda [c], Ahmed Ibrahim [c], Moutaz E.L. Sherbini [a], Helmy Rady [b], Kusuma Gopala [d], Rodrigo DeAntonio [e]

[a] University of Cairo, Al Kasr Al Aini St., 11553, Cairo, Egypt
[b] University of Alexandria, Smouha, Alexandria, Egypt
[c] Ain-Shams University, Abbasia, Egypt
[d] GlaxoSmithKline Pharmaceuticals Ltd., Bangalore, India
[e] GlaxoSmithKline Vaccines, Wavre, Belgium

*Objectives:* Persistent infection with high-risk (HR) human papillomavirus (HPV) is associated with premalignant lesions and cervical cancer, the third most common cancer amongst women globally and the second most frequent in Egypt. We studied the prevalence and type distribution of HPV and documented HPV infection awareness and health-related behaviours for HPV infection.

*Methods:* This was a multicenter, hospital-based observational study of women ≥18 years of age who attended for a gynaecological examination during October 2010–August 2011. Cervical samples were tested using Linear Array HPV genotyping. Two questionnaires on awareness and health-related behaviour were completed.

*Results:* Four hundred and forty-three women with a mean age of 39.3 ± 14.0 years were included in the analysis. HPV DNA was detected in 10.4% of women; a single HPV-type infection was found in 6.5% and multiple infections in 3.8%. The most prevalent HR types among HPV-positive women were HPV-16 (19.6%) and HPV-31 and HPV-51 (15.2% each); low-risk types included HPV-62 (17.4%) and HPV-84 (10.9%). The prevalence of HPV-18 was low (6.5%). The prevalence of any HR HPV-type was highest in women aged 45–54 years (9.2%).

*Conclusions:* The overall prevalence of HPV in Egypt was 10.4% and was highest (9.2%) amongst women aged 45–54 years. These data provide important reference information for public health authorities considering HPV prevention in Egypt.

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# The Prevalence of Human Papilloma Virus (HPV) among Egyptian Women and Its Impact: An Observational Study

**M. Elazab[1], O. Ali[2], M. C. Ramadan[1], M. Hassan[3*], H. Aljedaani[4], F. Gardner[5]**

[1]Al Galaa Teaching Hospital, Cairo, Egypt
[2]North Cumbria University Hospital, North Cumbria, UK
[3]New Cairo General Hospital, Cairo, Egypt
[4]Ibn Sina College Hospital for Medical Science, Jeddah, KSA
[5]DFFP, MRCOG, Portsmouth Hospital, Portsmouth, UK

## 3.1. HPV Prevalence

Among 1000 women underwent the LBC test, 143 women were positive to HPV DNA findings (14.3%), while the rest of women 857 were test free (85.7%) (Diagram 1).

## 3.2. Secondary Outcomes

97 cases (67.8%) of positive women showed different degrees of cervical intra-epithelial neoplasia CIN as shown in Table 1. They were treated by LLETZ and followed up successfully according to the British society of colposcopy and cervical pathology recommendations BSCCP.

8 cases (5.5%) were diagnosed with invasive cervical cancer stage 1A1 and 1A2 from the positive group of women.

HPV (16) was the commonest strain among all tested samples in comparison to other detected subtypes.

It was very interesting to find complex infection of more than one subtype of HPV in 36 women (26.8%) out of 143 women tested positive to HPV (Table 1).

It looks obvious that the majority of affected cases were in age group from 35 to 45-year-old which reflects the important role of raising awareness in women in that age.

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https://amj.journals.ekb.eg/ar cle_64948.html

# DETECTION OF HUMAN PAPILLOMAVIRUS GENOTYPES IN CANCER CERVIX PATIENTS: DAMIETTA GOVERNORATE, EGYPT

By

**Abd El-Moneim Mohamed Ibrahim Ghorab[1], Mahmoud Abd El-Hady Mohamed[2], Samia Mohamad Mohamad Eid[3], Mohamed Mohamed Ahmed Saleh[1], and Salah El-Din Sayed Omar Semary 4**

**Results:** HPV-DNA was detected in 40 % of patients. HPV 16 was detected in 25 %, HPV 31 in 20 %, HPV 11in 15 %, HPV 6 in 10 %, and HPV 18 in 5% of cases. About 25% (5/20) cervical cancer specimens exhibited multiple infections by HPV genotypes 16and 18, which showed a higher risk for development of cancer cervix. Correlations of age, age-specific prevalence, residence, multiple marriages, parity, contraceptives, and its duration, diabetes mellitus were statistically significant .while correlations of occupation, level of education, age at marriage, duration of marriage, recurrent and chronic infections, smoking, and family history of cancers were insignificant.

**Conclusions:** The prevalence of HPV in cancer cervix was 40%.So, the association between HPV and the development of cancer cervix in the studied Egyptian women cannot be fully established. HPV infection was mostly (75%) in the form of single infections with HPV16, 18, 31, 11, and 6 genotypes. However, HPV infections in multiple forms, 16+18 genotypes were in 25% of positive cases.

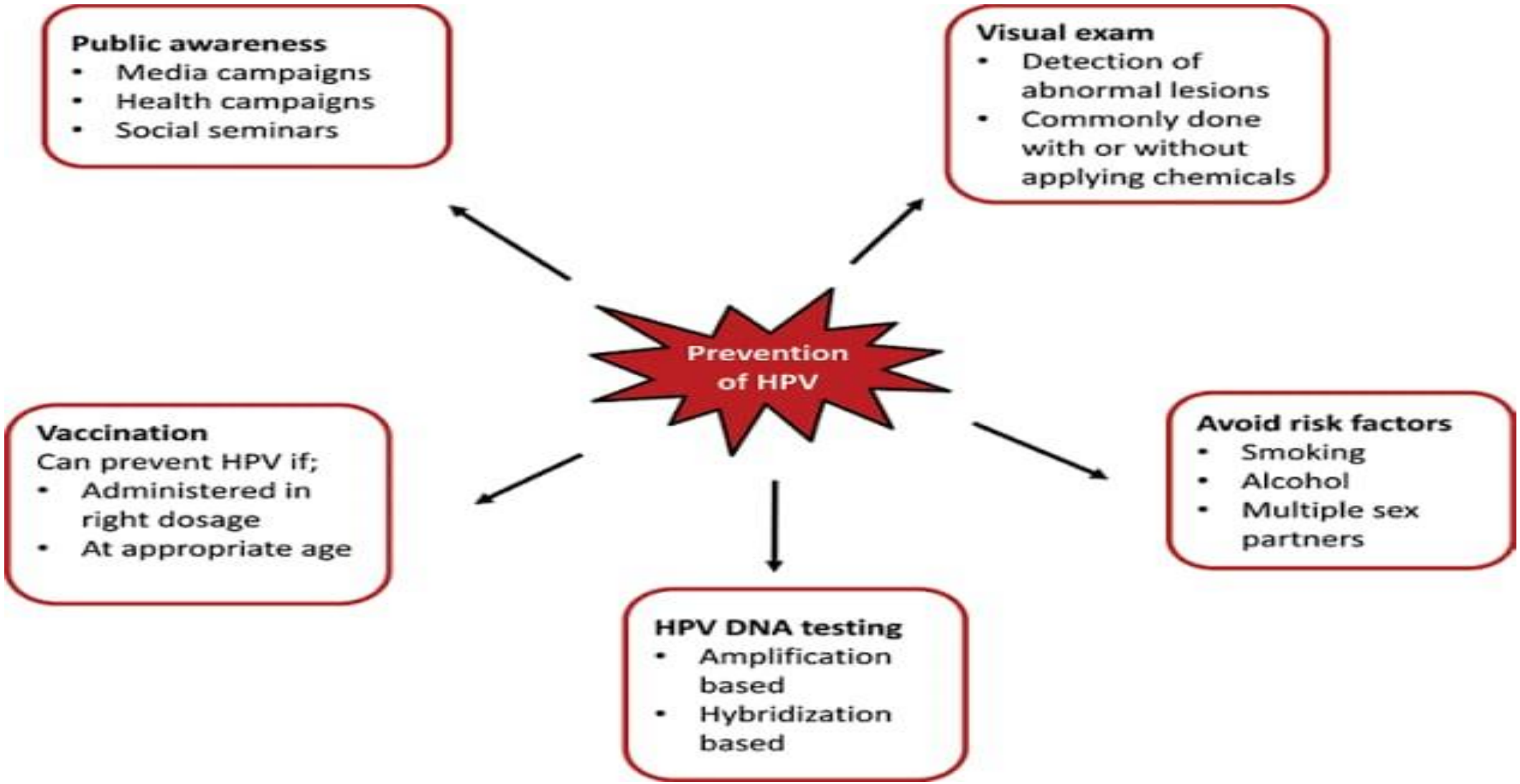
- **The variation in the prevalence rates of HPV reported by different researchers can be explained by the nature of HPV infections being transient and resolving on their own, so the prevalence of HPV might change over time.**

- **Secondly, different inclusion criteria for participant women may lead to variation in HPV prevalence as most studies with high HPV prevalence performed the study on women with abnormal cytological finding leading to a possibility of over estimation of infection.**

- **low prevalence rate could be due to implementation of HPV vaccine in national vaccination programs in some countries as shown in a study implemented in Canada by *Steben et al* who compared HPV prevalence between HPV vaccinated and HPV non vaccinated women and the result was 1.5% versus 11% respectively.**

# CONCLUSIONS & RECOMMENDATIONS

- our study provided important data for public health officials when formulating future strategies, including implementation of national vaccination programs, to prevent HPV- associated complications in Egypt.
- Further studies are recommended on wider scale including females from other areas and governorates.
- we recommend further studies testing other HPV genotypes especially other high-risk HPV genotypes.


Public awareness
• Media campaigns
• Health campaigns
• Social seminars
Visual exam
• Detection of abnormal lesions
• Commonly done with or without applying chemicals
Prevention of HPV
Vaccination
Can prevent HPV if;
• Administered in right dosage
• At appropriate age
Avoid risk factors
• Smoking
• Alcohol
• Multiple sex partners
HPV DNA testing
• Amplification based
• Hybridization based


Thank You !