



**25th  
International  
Papillomavirus  
Conference**

*May 8-14, 2009  
Malmö, Sweden*

# Course Curriculum

## Educational Workshop of the 25<sup>th</sup> International Papillomavirus Conference

8-10 May, 2009

## Educational Workshop May 8th: Introduction to HPV & Cervical Cancer Prevention

### **Aim:**

Enormous advances have been made in our understanding of HPV and in the development of HPV-based technologies. However, a significant barrier that we now face in realising the full public health benefits of these advances is the lack of awareness among the general public, medical practitioners and other medical personnel without previous experience of HPV, healthcare NGOs and politicians with a healthcare mandate. The aim of this session is to provide basic but balanced and evidence-based summary of HPV sufficient to understand the rationale underpinning the new HPV-based algorithms for cervical cancer screening and prevention.

### **Learning objectives:**

After attending this session, the participants will understand:

- 1) That the certain high-risk types of HPV are a necessary cause of cervical cancer
- 2) The natural history of HPV including its prevalence, transmission dynamics and the difficulty of reducing infection through traditional STI prevention practices
- 3) The natural history of cervical cancer including its long development and progression through pre-cancerous stages that allow early detection through screening and intervention to prevent cancer occurring
- 4) The operational differences between opportunistic and organised screening, and the proven efficacy of organised screening
- 5) The benefits and drawbacks of conventional cytology-based screening, and the benefits and drawbacks of HPV testing for primary screening
- 6) The efficacy of the HPV vaccines in different groups (pre and post sexual debut) and the most appropriate uses of the vaccine within public health programmes
- 7) How screening and vaccination must be coordinated to provide the most cost-effective cervical cancer prevention
- 8) That a significant barrier we now face to the implementation of cervical cancer prevention programmes the lack of:
  - a. Awareness among the general public that leads to a lack of participation in programmes that do exist and an absence of advocacy for the implementation of programmes where they do not exist
  - b. Awareness among healthcare professionals that denies this source of information to the general public and politicians or worse, leads to erroneous information being provided
  - c. Awareness among politicians which facilitates acceptance of opportunistic screening and lowers the priority of cervical cancer prevention programmes when public health policy and budgets are set
  - d. Advocacy programmes which, in the face of competing priorities and advocacy initiatives, lead to a lower priority for the implementation of the elements of a cervical cancer prevention programme
- 9) How these barriers can be overcome through education and advocacy to ensure that countries plan and implement evidence-based programmes that effectively and efficiently address national healthcare priorities within available budgets.

### **Target Audience:**

Medical personnel who are about to enter or have recently entered the fields of cervical cancer/HPV research or provision of cervical cancer prevention services. Public health officials, representatives of patient groups and health NGOs, politicians and other people having an interest in cervical cancer prevention.

## Educational Workshop May 9th: Cervical Cancer Screening

### **Aim:**

The aim of this session is to provide the participants with an updated, balanced and evidence-based summary of the essential knowledge that is required to understand and take part in modern, effective cervical cancer screening programmes.

### **Main Target Audience:**

Those active in any aspect of cervical cancer screening, including gynecologists, cytopathologists, virologists, epidemiologists, screening program administrators and other public health officials.

## Educational Workshop 10<sup>th</sup> May: HPV Vaccination

### **Aim:**

The aim of this session is to provide the participants with an updated, balanced and evidence-based summary of the essential knowledge that is required to design, implement and monitor effective HPV vaccination programmes.

### **Main Target Audience:**

Medical professionals active in any aspect of HPV vaccination, including pediatricians, gynecologists, general practitioners, epidemiologists, vaccination program administrators and other public health officials.

### **Peer Review:**

In order to increase the accuracy and credibility of the presentations, they will be subject to peer-review. Leading experts will comment on the presentations and authors will be asked to modify presentation to take reviewers' comments into account. .

### **Organised curriculum:**

To ensure that presentations meet the 25<sup>th</sup> IPV educational goals, lecturers are asked to compose presentations according to specific educational goals as detailed below. To avoid overlap, all lecturers are made aware of the contents of the other lectures.

## Programme, May 8th: Introduction to HPV & Cervical Cancer Prevention

	<b>Presentation</b>	<b>Speakers</b>
	Morning Session	Chairpersons: Philip Davies & Gunta Lazdane
<b>08.30 – 08.45</b>	Welcome & Opening Remarks	Joakim Dillner; Philip Davies
<b>08.45 – 09.15</b>	The burden of HPV-associated diseases	Xavier Bosch
<b>09.15 – 09.30</b>	Questions & Discussion	
<b>09.30 – 09.45</b>	HPV: the cause of cervical cancer	Mark Schiffman
<b>09.45 – 10.00</b>	HPV: natural history of the infection	Barbara Moscicki
<b>10.00 – 10.15</b>	Questions & Discussion	
<b>10.15 – 10.45</b>	Coffee	
<b>10.45 – 11.00</b>	Cervical cancer: the natural history of the disease	Patrick Walker
<b>11.00 – 11.15</b>	Cervical cancer prevention: screening	Amanda Herbert
<b>11.15 – 11.30</b>	Cervical cancer prevention: vaccination	Ole Eric Iversen
<b>11.30 – 11.45</b>	Cervical cancer prevention: the integration of screening with vaccination in comprehensive cervical cancer prevention programmes	Lena Dillner
<b>11.45 – 12.00</b>	Questions & session close	
<b>12.00 – 13.00</b>	Lunch	
	Afternoon session	Chairpersons: Philip Davies & Lena Dillner
<b>13.00 – 13.10</b>	Opening Remarks	Philip Davies
<b>13.10 – 13.25</b>	Knowledge and awareness of HPV and cervical cancer prevention among the general public	Jo Waller
<b>13.25 – 13.40</b>	Public Health Education and Cervical Cancer Prevention	Philip Davies
<b>13.55 – 14.10</b>	Awareness of HPV and cervical cancer prevention among healthcare professionals	Jo Waller
<b>14.10 – 14.25</b>	Raising awareness of HPV and cervical cancer prevention: the need for clinical education	Anne Szarewski
<b>14.25 – 14.40</b>	Questions & Discussion	
<b>14.40 – 14.55</b>	Political motivation for progress with cervical cancer prevention	Gunta Lazdane
<b>14.55 – 15.10</b>	Developing the political will for progress	Jolanta Dickute
<b>15.10 – 15.30</b>	Questions, discussion and closing comments	
<b>15.30 – 16.00</b>	Coffee	

**Session 1: HPV and Cervical Cancer Prevention**

Welcome & Opening Remarks	Joakim Dillner; Philip Davies
---------------------------	-------------------------------

The burden of HPV-associated diseases	Xavier Bosch
---------------------------------------	--------------

**Objective:** to describe the extent of the cervical cancer burden, estimate its human and economic impact, and contrast this with our ability to prevent the problem. The following topics will be included in this lecture:

- Cervical cancer incidence and mortality rates worldwide relative to the presence or absence of screening
- Age of onset for cervical cancer and years of life lost compared to other cancers
- Estimates of the number of precancerous lesions detected and followed-up using data from the organised programmes where available
- Estimates of the economic costs to healthcare systems and societies
- Effectiveness of screening and estimates of improvements that could be achieved through the addition of vaccination to coordinated programmes
- Relating prevention practices to reductions in the human and economic costs of cervical cancer

HPV: the cause of cervical cancer	Mark Schiffman
-----------------------------------	----------------

**Objective:** to show the link between HPV and cervical cancer is conclusive and one of the strongest in cancer epidemiology, to distinguish between HR and LR types, to position HPV 16/18 within the spectrum of HR types with regard to the risk of cervical cancer. The following topics will be included in this lecture:

- A summary of the data demonstrating the relative risks of HPV infection generally, showing the strength of the data through its consistency across studies and populations
- Distinguishing between high and low risk groups with the cancer risks/diseases that are attributed to each group
- A summary of the data showing that HPV 16 & 18 are particularly carcinogenic among HR types and the proportion of cervical

cancer due to them

- A summary of the data showing that HPV 6/11 are not carcinogenic but responsible for 90% of genital warts

HPV: natural history of infection	Barbara Moscicki
-----------------------------------	------------------

**Objective:** to show that HR-HPV is extremely common, acquired soon after sexual debut, most often transient, and that it is not effectively prevented by condoms. The following topics will be included in this lecture:

- HPV is most often a transient infection that resolves without treatment once the body has mounted an effective immune response, noting the consequent difference between the point prevalence and cumulative prevalence rates for HPV infection
- The cumulative prevalence rates by age, noting the peak in late adolescence and the subsequent decline
- Infection rates related to the commencement of sexual activity and number of sexual partners
- Effectiveness of condoms in preventing infection and/or promoting clearance of infection
- That some people do not clear their infections and the difference in persistence between HR and LR types

Cervical cancer: the natural history of the disease	Patrick Walker
---	----------------

**Objective:** to present a summary of cervical disease progression through pre-cancerous stages before reaching cancer and that intervention at an early stage prevents cancer from occurring, and relate this to the effectiveness of the Pap test and HPV screening. The following topics will be included in this lecture:

- The progression from HPV infection to CIN to cervical cancer including estimated progression and regression rates for each stage
- That persistence of HR-HPV infection is required for disease progression and cancer development
- The morphological stages of disease related to the operation of Pap test screening, noting the potential for disease regression and the effect on false positive rates
- That too-frequent screening will lead to the detection of excessive

amounts of non-progressive disease

- Relate timing of HPV infection relative to disease development and the use of HPV testing for primary screening with reference to the possibility of extending the screening interval
- The potential for HPV testing to detect excessive amounts of non-progressive disease and the need for methods to triage HPV positives to reduce this.

Cervical cancer prevention: screening	Amanda Herbert
---------------------------------------	----------------

**Objective:** to highlight the operational differences between opportunistic screening and organised screening programmes, to summarise the differences in terms of effectiveness and efficiency and to summarise the benefits and drawbacks of using HPV testing for primary screening. The following topics will be included in this lecture:

- What is meant by opportunistic screening with examples of countries that practice it
- What is meant by organised screening highlighting the most important elements
- Introduction to the concept of risk management –that the primary objective of screening is to indentify 1) those at low risk of developing (or having) cervical cancer so they can be returned to the population with the least amount of stress and inconvenience, and 2) those at higher risk so that appropriate interventions can be undertaken to reduce their risk
- The reductions in cervical cancer mortality that are possible with organised (cytology-based) screening programmes, emphasising that these results can only be achieved by organised programmes
- Summary of the three main uses for HPV testing: primary screening, triage, post-treatment follow-up
- Summary of an HPV-only primary screening algorithm with cytology triage for HPV positives focusing on the management of risk through the knowledge of the HPV status, together with summary performance data from the various European RCTs
- The potential advantages and disadvantages of HPV testing including workflow, QC, training, efficacy in an environment with a high proportion of HPV vaccinees, issues surrounding follow-up of HPV positive/cytology negative women.
- Considerations for programme implementation in countries where minimal or no screening currently exists and the majority or all of the infrastructure needs to be established de novo.

Cervical cancer prevention: vaccination	Ole Eric Iversen
---	------------------

**Objectives:** to present a clear and balanced view of the most appropriate public health applications for HPV vaccination in developed countries in terms of target ages and the need for integration with other public health programmes, most notably screening. The following topics will be included in this lecture:

- Summary of clinical trial data from the published literature, licensing submissions, etc., demonstrating the efficacy of the 2 HPV prophylactic vaccines in different populations including pre and post-sexual debut, females and males, for both low-grade and high-grade disease.
- Relating these data to the cost-effective use of vaccination within public health programmes, clearly distinguish the differences between making vaccination available within a population-based public health programme with mechanisms to achieve equitable coverage, making it available free of charge but on demand and making it available on a patient-pay basis
- Summary of outstanding issues and the potential impact they may have on public health programmes, including duration of protection vs. age of vaccination vs. age of sexual debut and the ability to equitably cover the target population with boosters at the age when vaccine protection may be waning, etc.

Cervical cancer prevention: the integration of screening with vaccination in comprehensive cervical cancer prevention programmes	Lena Dillner
--	--------------

**Objectives:** To highlight the importance of integrating HPV vaccination and screening within comprehensive organised cervical cancer prevention programmes to achieve the most cost-effective protection for the populations being served. The following topics will be included in this lecture:

- Review the importance of organised screening programmes and organised vaccination programmes to achieve equitable and cost-effective protection for the target population
- Review the changes to screening programmes that may be possible as the vaccinated cohorts enter the screening age range, such as lengthening of the screening interval, to maximise cost-effectiveness while maintaining protection, noting the need for accurate records of who has been vaccinated and when
- Note the future introduction of vaccines with additional HPV types that provide more complete protection and the potential for vaccine recipients to have minimal/no screening – provided there are accurate records of who has received what and when



## Session 2: Moving Forward with Cervical Cancer Prevention

Opening remarks	Philip Davies
-----------------	---------------

Knowledge and awareness of HPV and cervical cancer prevention among the general public	Jo Waller
--	-----------

**Objectives:** To demonstrate that awareness of cervical cancer and its prevention, HPV and its involvement in cervical carcinogenesis, and the benefits/drawbacks of Pap smear screening/HPV testing/HPV vaccination is very low and relate this to 1) poor uptake of prevention services where they are available, 2) lack of political pressure for the implementation of programmes where they are not available and 3) the issue of having 'informed consent' for screening and vaccination. The following topics will be included in this lecture:

- Summary data of knowledge/awareness levels in the general public by age where available for:
  - Cervical cancer
  - Pap test and/or cervical screening
  - Human Papillomavirus and cervical carcinogenesis
  - HPV testing
  - HPV vaccination
- An assessment of the reliability of the data and ability to generalise from it
- Relating lack of awareness to poor uptake of services and lack of political pressure
- Assessment of the general public's need for educational materials for them to adequately understand the benefits and drawbacks of screening (Pap/HPV) or vaccination (i.e. informed consent)

Public Health Education and Cervical Cancer Prevention	Philip Davies
--	---------------

**Objectives:** To explore the need for people to have a sufficient understanding of screening (Pap/HPV) and vaccination to be able to adequately understand the benefits and drawbacks, to determine what would constitute an adequate level of understanding and to recommend the means needed to achieve it. The following topics will be included in this lecture:

- Review the objectives of public health education on cervical cancer prevention
- Review of the key points that need to be understood for people to make an informed decision about Pap test screening, HPV screening and HPV vaccination
- The means by which the general public can be educated about these points
- Summary of the programmes that are in place to now to educate the general public and an analysis of what additional measures may be necessary

Awareness of HPV and cervical cancer prevention among healthcare professionals	Jo Waller
--	-----------

**Objectives:** To summarise the data indicating that many healthcare providers still do not have a sufficient understanding of cervical cancer and its prevention, HPV and its involvement in cervical carcinogenesis, and the benefits/drawbacks of Pap smear screening/HPV testing/HPV vaccination to play an effective role in the provision of this information to the general public. The following topics will be included in this lecture:

- Summary data of knowledge/awareness levels among healthcare providers stratified by area of practice:
  - Cervical cancer
  - Pap test and/or cervical screening
  - Human Papillomavirus and carcinogenesis
  - HPV testing
  - HPV vaccination
- An assessment of the reliability of the data and ability to generalise from it
- An assessment of the extent to which healthcare providers in the different practice areas already play in the provision of healthcare information to the general public and their ability to adequately fulfil that role with regard to information about cervical cancer prevention

Raising awareness of HPV and cervical cancer prevention: the need for clinical education	Anne Szarewski
--	----------------

**Objectives:** To suggest the appropriate level of understanding required for healthcare providers in different practice areas to act as a competent resource for the general public, to recommend the best

means for them to achieve this level of understanding. The following topics will be included in this lecture:

- Summary of healthcare providers' current levels of knowledge related to the level required for them to act as an adequate resource for the general public and assess what information is need for them to fulfil this role
- Review of the means that are available to educate healthcare providers in different practice areas
- Recommended means to motivate healthcare providers to learn the information

Political motivation for progress with cervical cancer prevention	Gunta Lazdane
---	---------------

**Objectives:** To highlight the need to include politicians in the educational process so they are properly informed about the benefits of cervical cancer prevention and can properly prioritise the implementation of organised cervical cancer prevention programmes. The following topics will be included in this lecture:

- Summary of the role that politicians play in the improvement of existing public health programmes or the implementation of new public health programmes
- Information that politicians require in order for them to implement healthcare policies and allocate healthcare budgets
- Means by which politicians acquire the information they need for policy formulation
- The role of the lobbying process in political decision-making

Developing the political will for progress	Jolanta Dickute
--	-----------------

**Objectives:** To summarise the strategies that can be used to raise awareness among politicians while creating bridges between the politicians and knowledgeable unbiased experts to facilitate the creation of effective evidence-based policies with adequate budgets for their implementation. The following topics will be included in this lecture:

- The importance of raising public awareness to create the political will for change
- The role of the media in creating the political will for change
- Working with interested politicians to expand the reach within national parliaments, such as parliamentary briefing sessions, information days and other actions that can be used to raise awareness among the relevant politicians

## Programme, May 9th: Cervical Cancer Screening

	<b>Presentation</b>	<b>Speakers</b>
	Morning Session	Chairpersons: Xavier Bosch & Peter Snijders
<b>08.30 – 08.45</b>	Welcome & Opening Remarks	Xavier Bosch
<b>08.45 – 09.00</b>	HPV: natural history of the infection from the biological perspective.	John Doorbar
<b>09.00 – 09.30</b>	HPV: natural history of the infection from the epidemiological and clinical perspective	Mark Schiffman
<b>09.30 – 10.00</b>	Cervical cancer screening; the principles and evaluation parameters of the programme	Eduardo Franco
<b>10.00 – 10.30</b>	Coffee	
<b>10.30 – 11.00</b>	How to organise a successful screening programme; the examples of the Nordic countries	Pekka Nieminen
<b>11.00 -11.30</b>	Cytology-based cervical cancer screening	Amanda Herbert
<b>11.30 – 12.00</b>	Testing for HPV. Requirements for clinical use	Chris Meijer
<b>12.00 – 13.30</b>	Lunch	
	Afternoon session	Chairpersons : Christine Bergeron & Ruth Tachezy
<b>13.30 – 14.00</b>	Cervical cancer screening: overview of HPV tests and trials and new proposals.	Anne Szarewski
<b>14.00 – 14.30</b>	Sustainable screening for developing countries	José Jeronimo
<b>14.30 – 15.00</b>	HPV testing for the triage of ASCUS and LSIL; principles and results	Philip Castle
<b>15.00 – 15.30</b>	Coffee	
<b>15.30 – 16.00</b>	HPV tests in the post-treatment follow up	Marc Arbyn
<b>16.00 – 16.30</b>	Cervical screening in populations vaccinated against HPV	Tom Wright
<b>16.30 – 17.00</b>	Rational transition from research studies to implementation in programmes	Jack Cuzick
<b>17.00 – 17.30</b>	Questions, discussion and closing comments	
<b>17.30</b>	Close	

HPV: natural history of the infection from the biological perspective.	John Doorbar
--	--------------

**Objective:** To present the key steps in infection and progression at the cellular level and the value of current biomarkers to follow and predict the process. The following topics will be included in this lecture:

- 1) The process of HPV infection at the cellular level including the site of infection, viral replication and shedding
- 2) Escaping immune surveillance, relating this to viral persistence
- 3) Coping with the infection: the cellular response.
- 4) The natural and vaccine-induced antibody responses
- 5) Comment on the relative value of HPV DNA, mRNA, E4, E6 and E7 markers, p16 INK for primary and/or secondary cervical screening, noting where they come in the infectious process, how this relates to our ability to predict clearance or persistence and ultimately to the potential sensitivity/specificity/PPV/NPV of the markers.

HPV: natural history of the infection from the epidemiological and clinical perspective	Mark Schiffman
---	----------------

**Objective:** To present the key steps in infection and progression at the population level and the study results that help guide patient management. The following topics will be included in this lecture:

- 1) A summary of study results on HPV transmission, incidence, prevalence and persistence, relating each to age and sex, while commenting on the reliability of the data for each category
- 2) Based on the summary, present a generic schematic of the natural history of HPV infection in women and men, by age
- 3) HPV type-specific natural history, focusing on clearance, persistence and progression rates by HPV type, and relating this back to the generic schematic by presenting the natural history of infection for the more aggressive HPV types compared to the less aggressive types
- 4) Relate the natural history to the use of HPV DNA testing as a primary screening test focusing on possible implications for the management of HPV negative women (i.e. the screening interval), the management of HPV positive (generic) women, the management of women who are positive for less aggressive HR-HPV types and the management of women who are positive for more aggressive HR-HPV types.

Cervical cancer screening; the principles and evaluation parameters of the programme	Eduardo Franco
--	----------------

**Objective:** To present the fundamental mechanisms of the cervical screening process including the essential performance indices, the quality control and the programme audit.

The following topics will be included in this lecture:

- 1) The primary objective of the screening programme, differentiating between the detection of pre-cancer, the detection of cancer, reduction in cancer incidence or reduction in cancer mortality and noting how the primary objective relates to the operation of the programme
- 2) The sensitivity, specificity, PPV/NPV. Relation to test performance and underlying disease prevalence and how they affect cost-effectiveness.
- 3) Outline the overall structure of a cervical screening programme noting the key elements of a screening programme that are required to achieve optimal performance (E.g. organisation, coverage, avoiding socioeconomic biases, follow-up of abnormalities, QC and audit).

Successful screening: the examples of the Nordic countries in Europe	Pekka Nieminen
--	----------------

**Objective:** To present the structures, health benefits and costs of the screening programs in the Nordic countries. The following topics will be included in this lecture:

- 1) A description of the Nordic screening programs including the structure (organised, screening ages, recall intervals, nation-wide registration and evaluation etc.), coverage, programme sensitivity/specificity/PPV/NPV, impact on cancer rates, etc. NB “coverage” should not be used to refer to proportion of population covered by invitations. “Coverage” (or if ambiguity “test coverage”) should refer to proportion of population covered by screening tests.
- 2) Failures of the screening programs in terms of performance, relating these to causes within the structure of the programme, the inherent limitations of screening, etc.
- 3) The special case of cervical adenocarcinomas and the performance of cytology-based screening for the detection of these cancers.
- 4) The use of organised changes to the programmes, specifically noting implementation trials of HPV screening, automated cytology and plans to accommodate the use of HPV vaccination
- 5) Applicability of the Nordic screening model to developing countries and previously unscreened populations (e.g. Eastern Europe).

Cytology-based cervical cancer screening	Amanda Herbert
--	----------------

**Objectives:** To understand the components of a cytological screening program. Expected results and weak points requiring active program quality assurance and auditing. The following topics will be included in this lecture:

- 1) The principles of cytology. Classifications in use.
- 2) Global validity of cytology as a screening test. Meta analyses and trials
- 3) Quality assurance and auditing.
- 4) Future developments: Liquid Based cytology, computer reading and novel biomarkers
- 5) Opportunities for combination with HPV testing

Testing for HPV. Requirements for clinical use	Chris Meijer
--	--------------

**Objective:** To present the critical importance of using validated tests in clinical practice and in screening programs. The following topics will be included in this lecture:

- 1) Clinical vs analytical sensitivity
- 2) What level of data constitutes 'clinical validation?'
- 3) Why we need to use validated tests having clearly defined and standardised performance characteristics, relating this to the clinical follow-up algorithms
- 4) Validation of the standard HC2 test
- 5) Validation of other tests (HPV DNA, HPV RNA, HPV typing tests, other markers). Brief update on where all these tests are in their validation process
- 6) Discuss whether tests with different performance characteristics (typing, mRNA, etc.) imply alternative management algorithms
- 7) Conclusions on which tests can now be considered as clinically validated and which tests need more work

Cervical cancer screening: overview of HPV tests and trials and new proposals.	Anne Szarewsky
--	----------------

**Objective:** To present a concise summary of HPV testing compared to cytology for primary screening based on the results of the RCTs. The following topics will be included in this lecture:

- 1) Trial design issues focusing on the failings of the early cross-sectional studies, the need for robust data to inform public health policy decisions particularly for population-based programmes with the potential to do more harm than good, and the structure of the RCTs noting how these meet the requirements for public health policy formulation

- 2) Review the structures of the HPV primary screening RCTs, noting the similarities and differences between the study designs, particularly with reference to outcome measures such as CIN2+ or CIN3+ and how this can influence the study conclusions
- 3) Review the results of the RCTs noting where similar results reinforce the strength of the data and where differences that cannot be explained by trial structure raise further questions
- 4) provide an overview of the testing systems available and of their relative performances and summary conclusions that can be drawn from the data in aggregate.
- 5) Outline whether the data suggest that the screening algorithms used in the RCTs could be further improved, e.g. algorithms with age-restricting HPV/Cytology double testing by age or algorithms with HPV screening followed by triage with cytology, VIA or and HPV typing.

Sustainable screening for developing countries	José Jeronimo
--	---------------

**Objective:** To critically present the opportunities for screening in middle income and low income countries. The following topics will be included in this lecture:

- 1) The global impact of cytology-based screening programs by socio economic status. Major reasons for problems.
- 2) VIA trials
- 3) HPV trials
- 4) New concepts in sustainable preventive strategies in the presence / absence of vaccination campaigns

HPV testing for the triage of ASCUS and LSIL; principles and results	Philip Castle
--	---------------

**Objective:** To present the consolidated evidence on the value of HPV test in triaging women with ASCUS and LSIL. The following topics will be included in this lecture:

- 1) Review the need for the triage of ASCUS/LSIL results including comments on burden of over-diagnosis, over-treatment, costs, etc.
- 2) The benefits/drawbacks of cytology vs HPV testing for triage
- 3) Update and summarise the ALTS trial results
- 4) Review of other triage studies with an assessment of the uniformity or comparability of results between studies
- 5) Summary of the meta analyses of HPV testing for triage and assessment of the robustness of the results
- 6) Generalization of trial results and implications to their use in other settings with different classifications or quality assurance procedures
- 7) Review of accepted/endorsed clinical algorithms using HPV testing.



HPV tests in the post-treatment follow up	Marc Arbyn
---	------------

**Objective:** To present the consolidated evidence on the value of HPV test in the follow-up of women treated for cervical lesions. The following topics will be included in this lecture:

- 1) Key performance indices and quality criteria evaluated in meta-analyses
- 2) HPV test vs. cytology in predicting recurrence.
- 3) Type specific tests vs. cocktail testing.
- 4) Options for timing of HPV tests and/or cytology post treatment.
- 5) HPV testing in evaluation of new treatment regimens.
- 6) HPV tests in lymph nodes after uterine resections.

Cervical screening in populations vaccinated against HPV	Tom Wright
--	------------

**Objective:** To present the challenges screening programmes will face as the proportion of women in the screening ages who have been vaccinated against HPV increases. The following topics will be included in this lecture:

- 1) The predicted impact of HPV vaccination on the overall prevalence of cytological abnormalities and balance between low-grade and high-grade cytology
- 2) The predicted impact on the overall efficacy of cervical screening programmes
- 3) The changes that will be required in screening programmes so they can remain cost-effective as the proportion of vaccinated women increases: include age to commence screening, age to stop screening, recall intervals, primary and secondary screening tests
- 4) Options for developing countries

Rational transition from research studies to implementation in programmes	Jack Cuzick
---	-------------

**Objective:** To describe options for feasible and sensible progressive transition from the research setting to the health care setting of HPV based programs with cytology/ other markers / VIA as triage. The following topics will be included in this lecture:

- 1) Rationale for the transition (synthesis of other presentations)
- 2) The concept of the randomised health care policy (demonstration projects)
- 3) Technological and logistical requirements, including
  - Opt out consent
  - Randomisation issues
  - Work flow issues (retaining capacity for old and new tests)
  - Use of collected material for additional tests not immediately leading to clinical actions
  - Public and professional education
  - Funding issues
- 4) Proposals for countries with established screening programs
- 5) Short and long term expectations in terms of costs and benefits.

## Programme May 10th: HPV Vaccination

	Presentation	Speakers
08.30	Welcome & Opening Remarks	Organization and chair
08.30 – 09.00	HPV vaccines. Trials and results	John Schiller
09.00 – 09.30	How do vaccines protect?	Margaret Stanley
09.30 – 10.00	Critical issues: Safety, Duration of protection, Cross-protection	Douglas Lowy
10.00 – 10.30	Coffee	
10.30 – 11.00	Vaccination in infants, males, immunocompromised and mid-adult women	Joel Palefsky
11.00 – 11.30	Monitoring HPV vaccination campaigns	Julia Brotherton
11.30 – 12.00	Cervical cancer prevention: using modeling to predict the optimal combinations of vaccination and screening	Shalini Kulasingam
12.00 – 13.00	Lunch	

### Joint sessions of the 25<sup>th</sup> International Papillomavirus Main Conference & Educational Workshop:

	Presentation	Speakers
13.30 - 16.00	HPV Prophylactic Vaccines, Clinical Aspects	Chairpersons: Matti Lehtinen and Luisa Lina Villa
13.30 - 14.00	Invited Plenary Lecture: HPV Vaccination and Public Health: Opportunity and Challenge	Jorma Paavonen
14.00 –16.00	Presentations by delegates of abstracts submitted by participants of the 25 <sup>th</sup> International Papillomavirus Conference	

<b>18.00-21.00</b>	<b>Grand Opening at the Malmö Opera</b>	
	<u>Inauguration Lecture:</u> by the laureate of the 2008 Nobel Prize in Medicine, professor Harald zur Hausen,	
	<u>Swedish Rhapsody:</u> Sweden from north to south with nature, culture and people, song and music	
	<u>Welcome reception:</u> Enjoy a buffet with Swedish specialities	

**Tickets for the Grand Opening at the Malmö Opera can be obtained by delegates of the HPV Educational Workshop, by a free pre-registration.**

HPV vaccines. Trials and results	John Schiller
----------------------------------	---------------

**Objective:** Understand the achievements and limitations of the current Phase III vaccination trials. The following topics will be included in this lecture:

- 1) Brief presentation of composition of current prophylactic vaccines.
- 2) Trial designs: International recruitment and generalization of conclusions; the value of the CIN 2/3 endpoint; the persistent infection endpoint and the validity of the 6-7 years of time of follow up;
- 3) Brief presentation of the procedures to assess safety and efficacy.
- 4) Issues in the interpretation of trials: Classification of multiple infections; Limited information on events related to other HPV types.
- 5) Review of efficacy data in different populations under study: Per protocol vs. intention to treat populations. HPV-naïve (HPV DNA-negative and/or seronegative) populations vs. untested populations. Comment on what this implies for HPV-testing before vaccination and focusing on age groups with no or limited exposure.

How do vaccines protect?	Margaret Stanley
--------------------------	------------------

**Objective:** To understand the mechanisms of protection. The following topics will be included in this lecture:

- 1) Natural immune response, covering the therapeutic and prophylactic aspects. The molecular basis for antigen recognition and specificity
- 2) The vaccine-induced immune response, noting the aspects that are similar to or different from the natural immune response and the implications this has for the use of the vaccine (i.e. optimal clinical performance requires administration before exposure to the HPV types in the vaccine).
- 3) Review of the studies investigating the mechanisms of vaccine-induced protection in animals.
- 4) Comment on the lack of a correlate of immunity for humans and the implications of this.
- 5) Review results on immune responses in vaccination trials in humans. The relevance of antibody titers within trials and across trials

Critical issues: Safety; Duration of protection; Cross protection	Douglas Lowy
---	--------------

**Objective:** To present the ongoing research issues for the HPV vaccines. The following topics will be included in this lecture:

- 1) Safety in Phase III trials and surveillance in Phase IV studies. Procedures to assess unwanted side effects in vaccinated cohorts. Methodology of attribution of side effects to vaccination events.
- 2) The potential value of antibody response (Ab. titers and 6-year follow up profiles) as predictors of response.
- 3) The value of mathematical models for estimating duration of protection, noting current predictions for the duration
- 4) Potential for cross protection of VLP vaccines and interpretation of current findings.

Vaccination in infants, males, immunocompromised and mid-adult women	Joel Palefsky
--	---------------

**Objective:** Present the major issues relating to the vaccination of these groups. The following topics will be included in this lecture:

- 1) Results on vaccination trials in infants
- 2) Results on male vaccination trials
- 3) Results on HIV / transplant recipients vaccination trials
- 4) Immune response in patients under HART
- 5) Results from trials in mid-adult women
- 6) Results from trials in low and middle income countries
- 7) Make a summary on advantages and disadvantages of vaccinations in these groups, taking trial results, epidemiology and cost-efficiency into account.

Monitoring HPV vaccination campaigns	Julia Brotherton
--------------------------------------	------------------

**Objective:** Present the current status of HPV vaccine introduction in developed and developing countries and the ongoing studies to provide short and long term population-based follow-up. The following topics will be included in this lecture:

- 1) Update the world map as to vaccine licensing, recommendations for age groups and implementation of vaccination programmes.
- 2) Describe ongoing studies to provide follow-up, including the efforts underway in the WHO HPV LabNet.
- 3) Location and design of Phase IV surveillance programs in developed countries
- 4) Recommended strategies of routine surveillance in developed countries,
- 5) HPV vaccine introduction and monitoring in GAVI and other developing countries

Cervical cancer prevention: using modeling to predict the optimal combinations of vaccination and screening	Shalini Kulasingam
---	--------------------

**Objective:** Present the contribution of modeling studies to guide recommendations for cervical cancer prevention programs in developed and developing countries. The following topics will be included in this lecture:

- 1) Inputs and outputs in modeling studies. Brief definition of the parameters used to measure, assess and interpret cost effectiveness. Brief definition of the limitations of these analyses.
- 2) Impact of the age groups to vaccinate, catch-up programs and both sex vaccination programs.
- 3) Impact of screening technique and frequency
- 4) Impact of vaccine cost
- 5) Based on the models, the optimal combinations of vaccination and screening in developed and developing countries