

Adolescent Decision-Making and Health Behaviors

The Influence of Contextual Factors on the Use of New Technologies to Prevent HPV-Related Diseases

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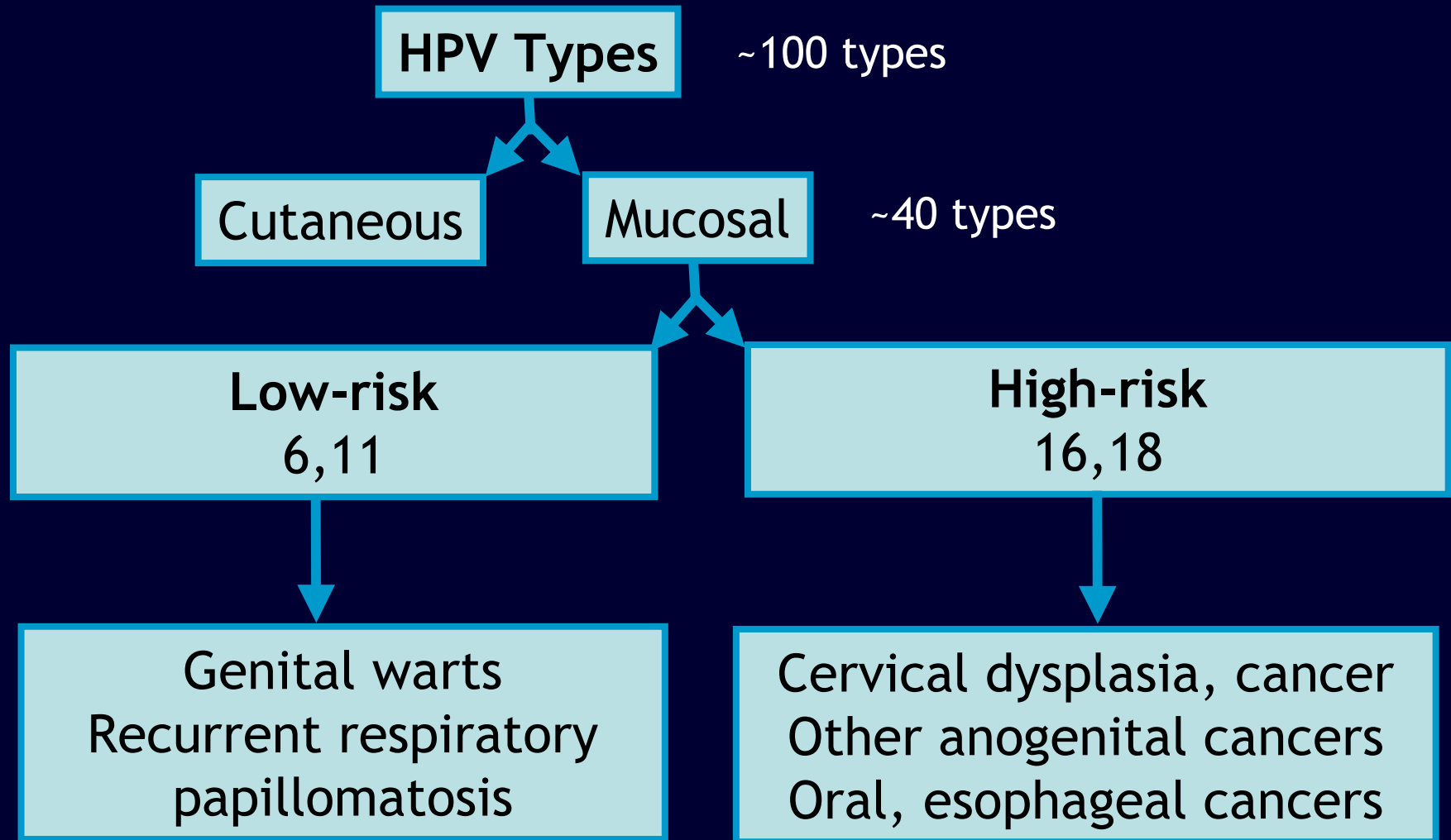
University of Cincinnati School of Medicine



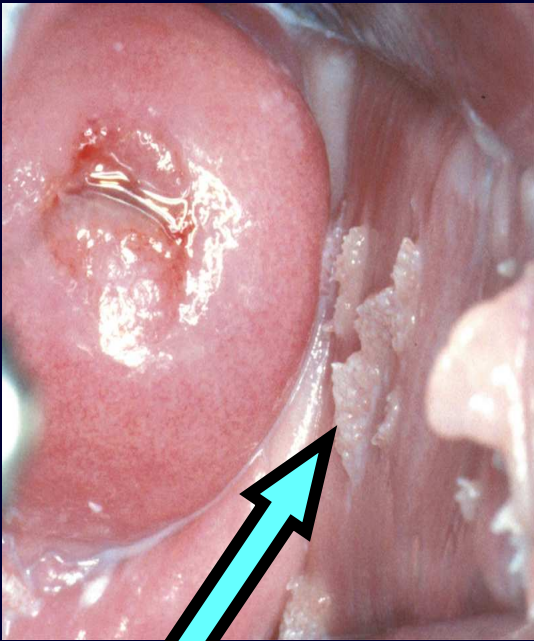
Topics

- Public health impact of HPV
- New technologies to prevent HPV, challenges for adolescents
- Research findings re: influence of contextual factors on adolescent decision-making about new technologies
- Implications for health promotion, prevention
- Frontier areas of research

HPV Types and Clinical Sequelae



External Genital Warts



Condylomata acuminata

Recurrent Respiratory Papillomatosis

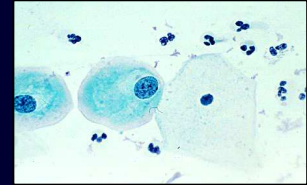


Photograph courtesy of Michael Rutter, MD
Cincinnati Children's Hospital Medical Center

Abnormal Cervical Cytology (Pap Test)

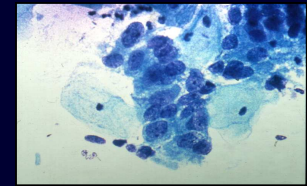
Atypical squamous cells (ASC)

ASC-US
ASC-H



Atypical glandular cells (AGC)

AGC-NOS
AIS
Adenocarcinoma



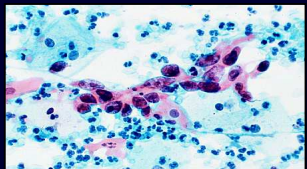
Low-grade squamous intraepithelial lesion (LSIL)



High-grade squamous intraepithelial lesion (HSIL)



Cancer (Squamous cell carcinoma)



Cervical Dysplasia and Cancer



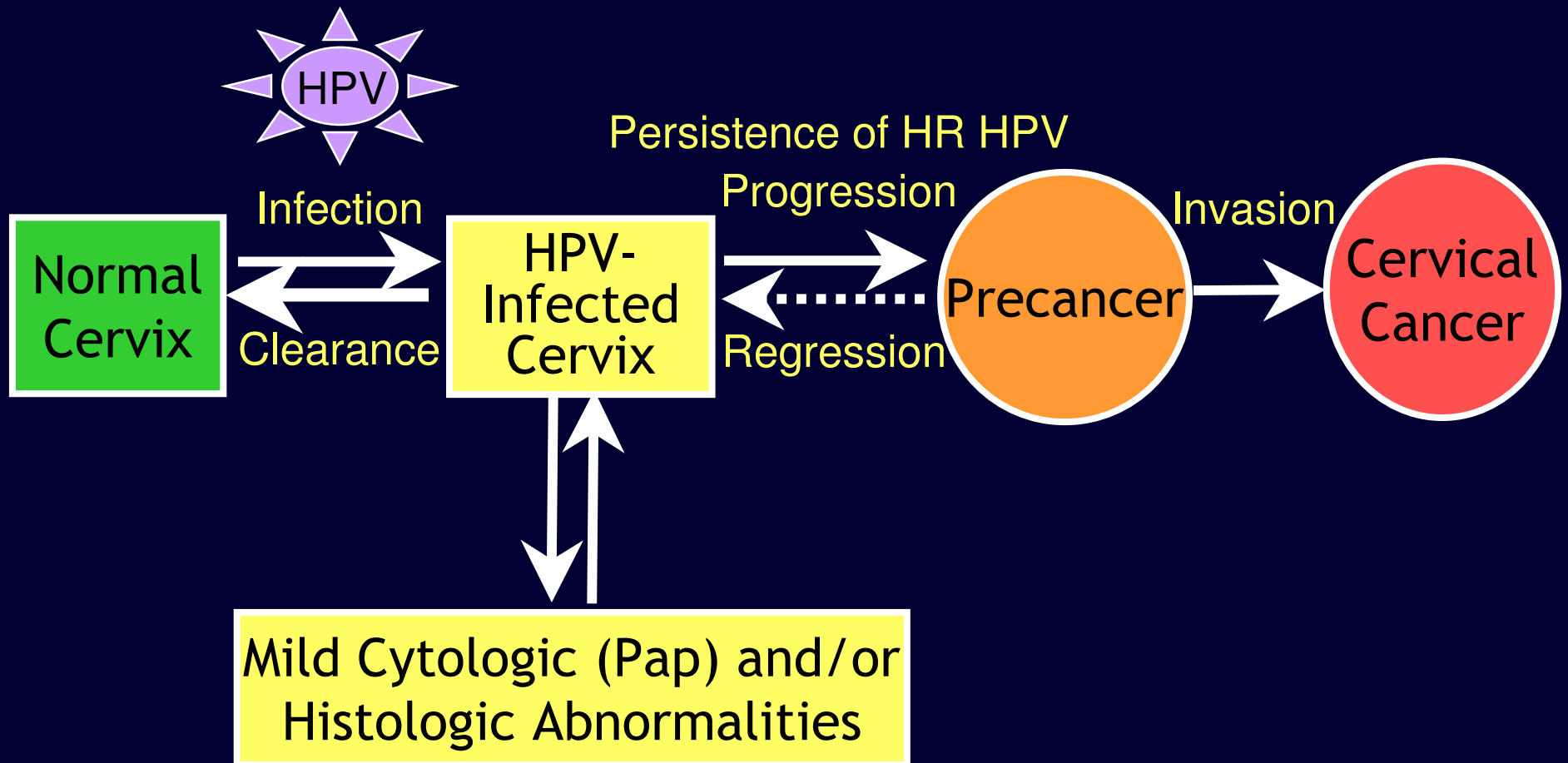
Mild dysplasia (CIN 1)
Moderate dysplasia (CIN 2)
Severe dysplasia (CIN 3)
Carcinoma-in-situ



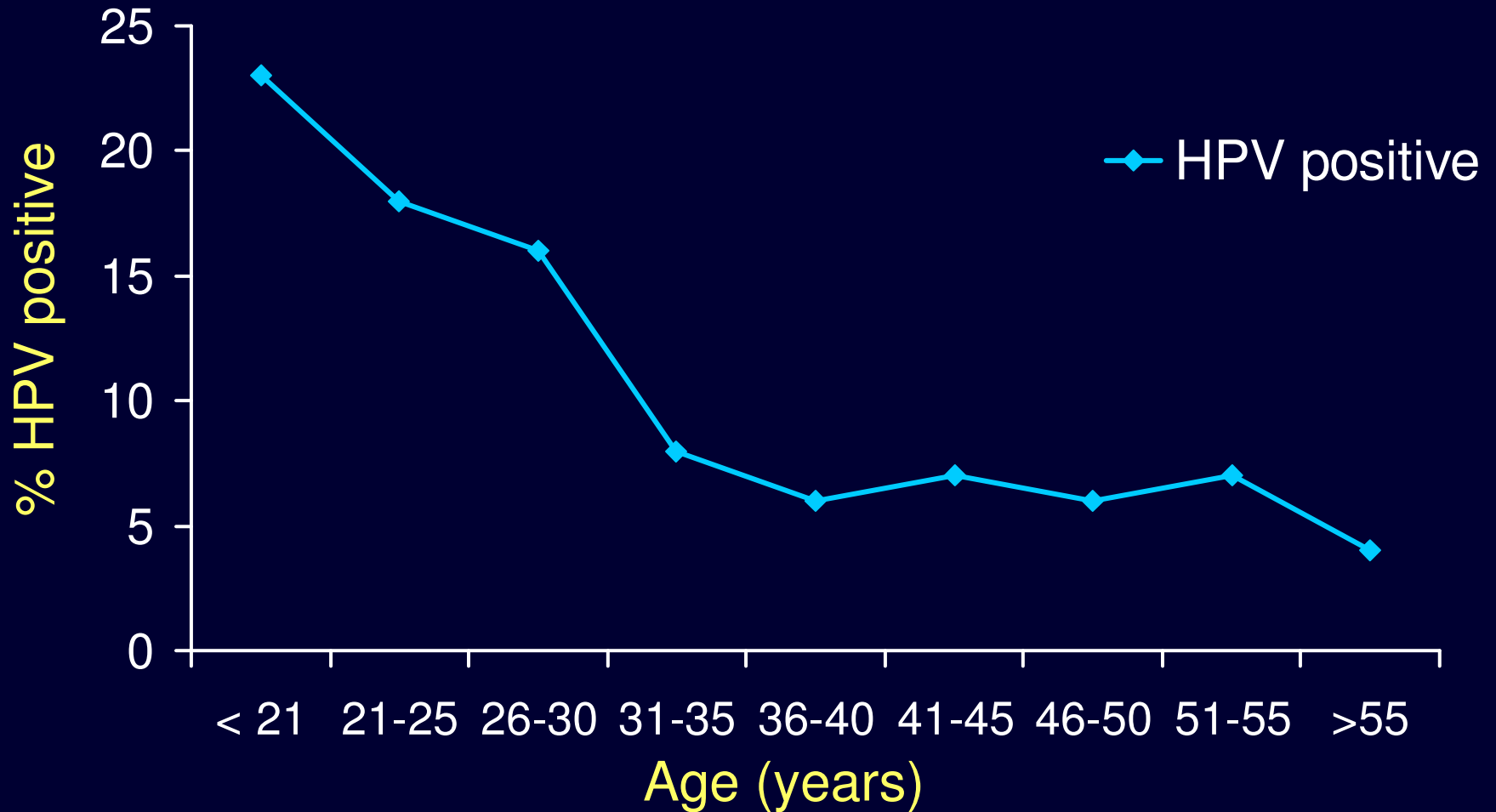
Invasive cervical cancer

CIN = cervical intraepithelial neoplasia

Cervical Carcinogenesis



HPV Prevalence by Age



Herrero et al. *J Natl Cancer Inst.* 2000.

HPV Prevalence in Adolescents

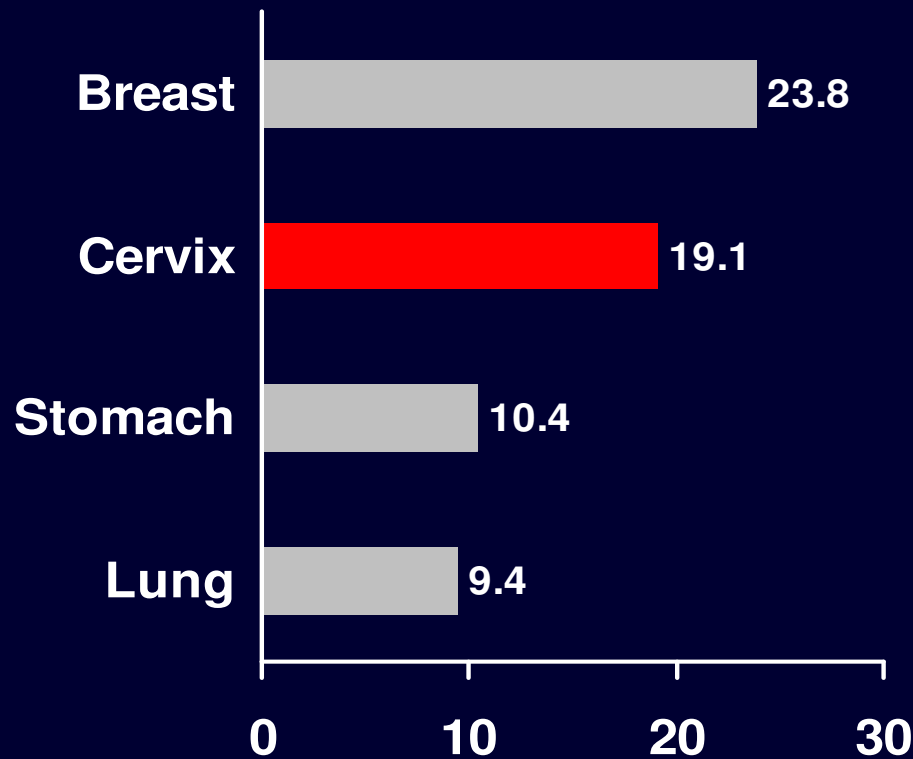
- Few population-based adolescent data, but prevalence high in studies of sexually active urban adolescent girls
 - Point prevalence 51-64%
 - Cumulative prevalence/2 yrs 82%
- Infection with multiple types in $\geq 50\%$
- Infection usually transient in adolescents but unclear if represents eradication of virus

Kahn et al., *Obstet Gynecol* 2004, Tarkowski et al., *J Infect Dis* 2004, Brown et al., *J Infect Dis* 2004.

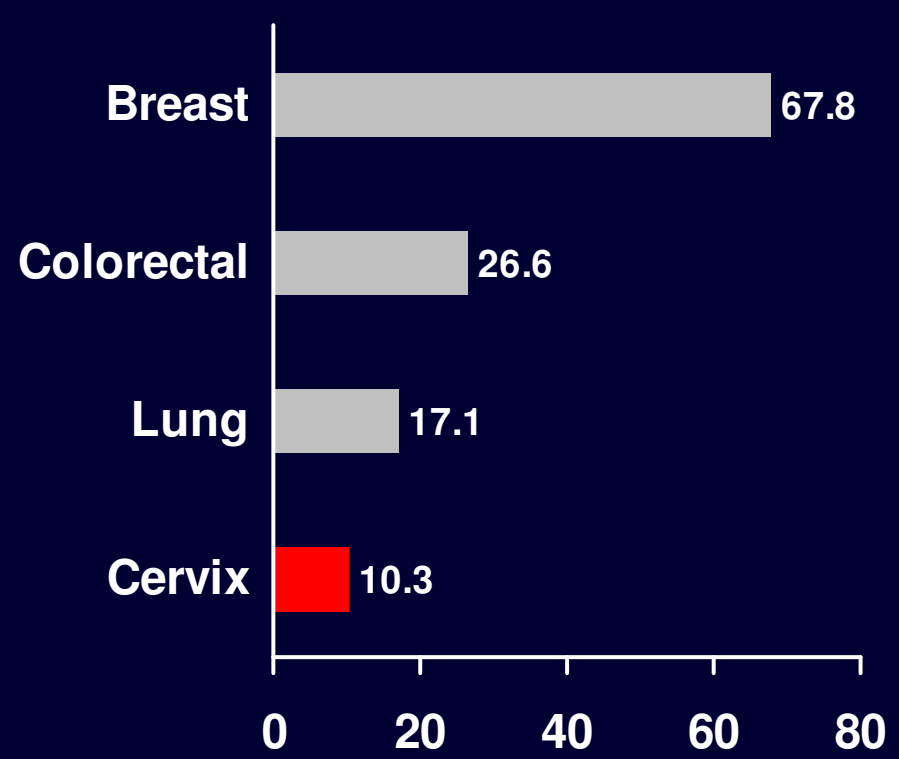
Most Common Cancers in Women

(2002 age-standardized rates/100,000)

Developing Countries

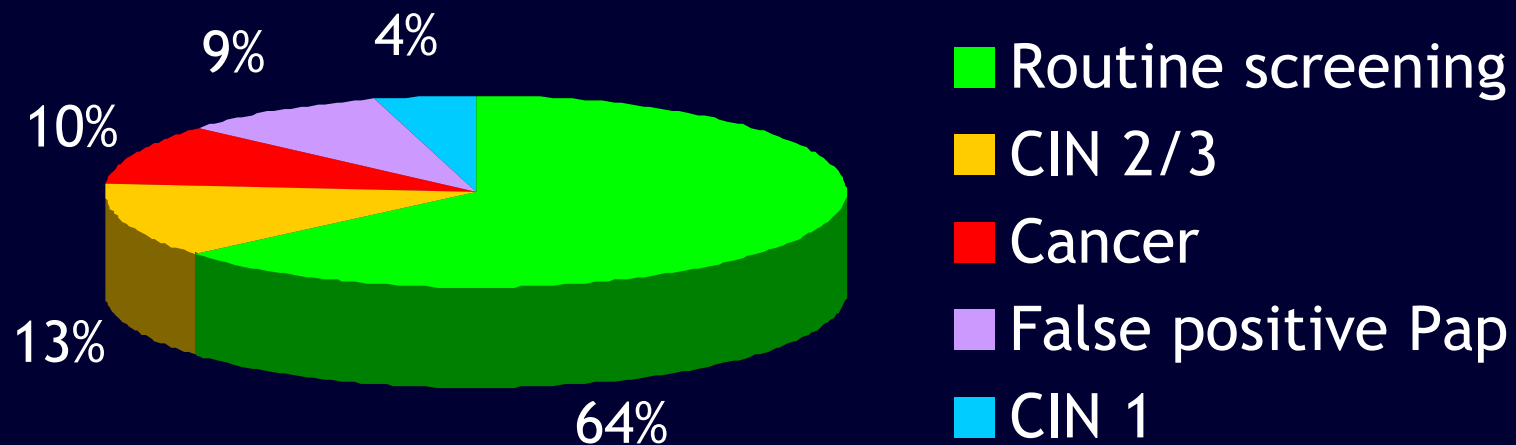


Developed Countries



~230,000 deaths per year worldwide
(80% in developing countries)

Costs Associated with Cervical HPV in U.S.



- Cost per 1,000 women/year = \$26,415
- Costs associated with screening estimated to be \$6-7 billion annually

Limitations of Pap Smear

- Pap smear recommended previously for all sexually active women beginning in late teens
- Limitations of Pap smear
 - Low sensitivity of one Pap: mean 47% (30-87%)
 - High costs
 - Poor compliance

Limitations of
Pap smear

+

Strong evidence
linking HPV to
cervical cancer,
genital warts



New methods to
augment/replace
Pap smear

Vaccines
targeting HPV

New Technologies for the Prevention of HPV-Related Diseases

- Pap testing (ThinPrep, SurePath)
 - Liquid-based cytology systems, increase sensitivity
- HPV DNA testing (Hybrid Capture II)
 - + cervical test for high-risk types sensitive for dysplasia
 - Adjunct to Pap, mgmt after abnl Pap, primary screen
 - Self-testing using vaginal swab possible, accurate
- HPV vaccines (Cervarix, Gardasil)
 - 2 in phase III clinical trials: 6,11,16,18 and 16,18
 - Highly effective in preventing HPV, abnormal Pap tests

General Challenges New Technologies Present for Adolescents

- Inadequate Access to Technologies
 - Adolescents may not have usual source of care, access that care, make appropriate decisions about use
- Poor Knowledge and Understanding
 - Adolescents have difficulty understanding HPV, Pap testing, complex associations between HPV, abnormal Pap tests, and cervical cancer
- Developing Cognitive Abilities
 - Prefrontal cortex not fully developed
 - Ability to make complex decisions, imagine future consequences of actions still developing

Specific Challenges New Technologies Present for Adolescents

- Pap testing
 - Poor adherence to screening and follow-up
- HPV DNA testing
 - Adverse psychosocial responses to abnormal results
 - Difficulty with shared decision-making given complex, evolving guidelines
 - Concerns about self-testing
- HPV vaccines
 - Parental consent issues, concerns about STI vaccines
 - Ensuring adherence to vaccination schedules
 - Conveying importance of continued Pap screening

Influence of Contextual Factors on Adolescent Health Behaviors and Decision-Making

- Extensive literature on influences of contextual factors on sexual risk behaviors, contraception
 - Families: relationships (satisfaction, connectedness), parenting practices (supervision, warmth), communication (values, behaviors)
 - Providers: most teens have access, trust advice, welcome discussions of sexuality
 - Peers: standards for self-evaluation, role models
- Research emerging about influence of contextual factors on new technologies to prevent HPV-related disease

Contextual Factors and Pap, HPV Testing

- Families

- Experiences of cancer, cervical cancer in one's family

- Providers

- Access to provider

- Female provider gender

- Provider skills: education/counseling, communication, examination

- Peers

- Advice re: exam

- Anticipated stigma

- Relationship quality

Kahn et al.

Arch Ped Adolesc Med, 1999

Pediatrics, 2001

Obstet Gynecol, 2003

J Women's Health, in press

Maternal Communication and Pap Testing

Adolescent had Pap
OR (95% CI)

- Influence of maternal, provider, peer influences on adolescent decisions regarding 3 cancer prevention behaviors
- Data from GUTS/NHS
- Preliminary results (N=1,334)

Maternal communication

Ever told to have Pap	7.7 (6.4-9.2)
Discussed Pap	
<i>Once</i>	3.3 (2.6-4.2)
<i>Occasionally</i>	6.1 (4.8-7.9)
<i>Sometimes</i>	9.1 (6.9-12.1)
<i>Often</i>	13.5 (9.7-18.5)

Contextual Factors and HPV Vaccines

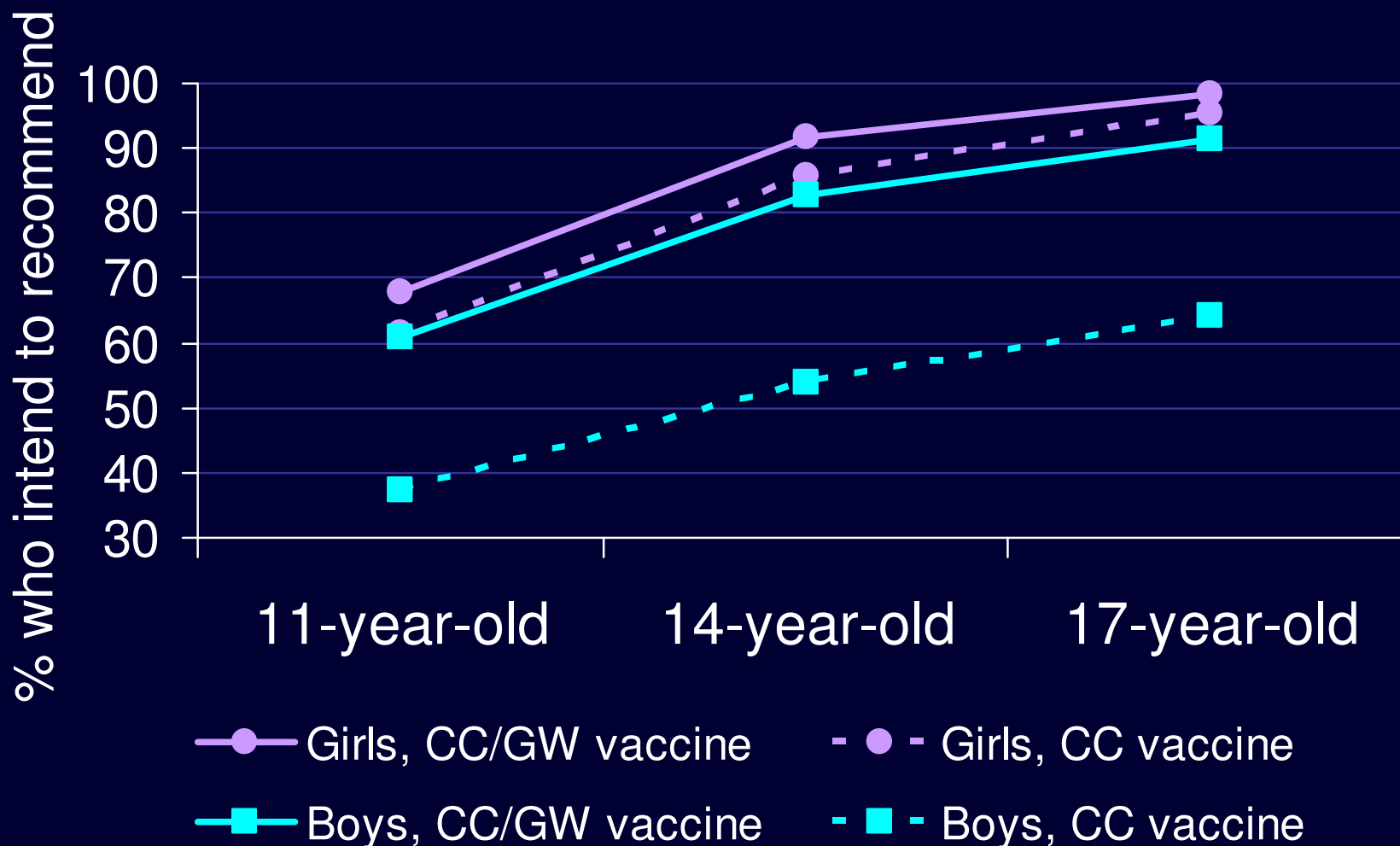
- Contextual factors will be key to effective uptake
 - Physician recommendation may be most important determinant of uptake
 - Parental consent likely to be required for those <18 yrs
- Few studies of adolescent/young adult decision-making and contextual influences
- However, studies focusing on provider and parent attitudes about HPV vaccination may be helpful in understanding their role in adolescent decision-making

Provider Attitudes about HPV Vaccines

- Studies of nurse practitioners, obstetricians/ gynecologists, family physicians, pediatricians generally show they are reluctant to immunize younger adolescents, boys
- Pediatrician study aims:
 1. To assess intention to recommend two hypothetical HPV vaccines by patient age, patient gender, and vaccine type
 2. To identify provider characteristics/attitudes associated with intention

Raley 2004, Infect Dis Obstet Gynecol; Mays 2004 Sex Transm Dis; Kahn, J Ped Adol Gynecol, in press; Kahn, J Adolesc Health, in press

Pediatricians' Intention to Recommend HPV Vaccines by Age, Gender, Vaccine Type



Kahn et al., *J Adolesc Health*, in press

Variables Associated with Pediatricians' Intention to Recommend CC/GW Vaccine

Variable	Beta coefficient	P value
Experience with adolescents	1.30	.015
Knowledge about HPV	1.08	.015
Estimated % 15 y/o sexually active	.084	.002
Likelihood of following recs of organizations, individuals	.834	.001
Perceived barriers to immunization	-.203	.001

Parental Attitudes about HPV/STI Vaccines

- Most parents find vaccines acceptable
- Most parents believe *they* should be the primary decision-maker about vaccination
- Factors associated with parental attitudes: beliefs about severity of disease, perceived risk, vaccine safety/efficacy, pediatrician's advice
- Some parents do not believe their child is at risk, express concern about increase in risky sexual behaviors

Olshen et al, *J Adol Health* 2005, Mays et al, *Soc Sci Med* 2004, Zimet et al, *Arch Ped Adolesc Med* 2005, Zimet et al, *J Adol Health* 2005

Adolescent/Young Adult Attitudes about HPV Vaccines

- Most adolescents/young adults also find vaccines acceptable
- Most adolescents believe *they* should be the primary decision-maker about vaccination
- Contextual factors associated with young adults' attitudes
 - Experience of cancer in one's family
 - Approval of vaccination by sexual partners, parents, providers

Theoretical Frameworks in Study of Adolescent Decision-Making about New Technologies

- Most useful approach will depend on aims ...
- Models of interpersonal health behavior (SCT)
 - Useful in understanding role of families, providers, peers in adolescent decision-making re: technologies, determinants of behaviors
- Models of individual health behavior (TPB, HBM)
 - Useful in guiding interventions to influence health decisions re: technologies
- Integrated frameworks, theory building (GT)
 - Help ensure frameworks relevant to adolescents

Implications of Research for Health Promotion and Prevention Strategies

- Virtually all CC deaths avoidable if women participate in Pap/HPV screening and HPV vaccines highly promising; thus, goals for health promotion/prevention should include:
 1. Increasing adolescent knowledge about new technologies to prevent HPV-related disease
 2. Increasing adherence to recommendations for HPV/Pap testing and follow-up
 3. Maximizing uptake of HPV vaccines
- Strategies to accomplish goals that take into account challenges and contextual factors ...

1. Increase Adolescent Knowledge of New Technologies

- Develop and make available educational materials, public health messages
- Ensure they are cognitively, developmentally, linguistically, culturally appropriate
- Incorporate contextual influences into content

2. Increase Adherence to Pap/HPV Testing

- General strategies
 - Ensure adolescents have usual source of care, comprehensive services
- Focus on contextual factors
 - Parents
 - Educate about Pap/HPV screening
 - Providers
 - Educate about HPV/guidelines
 - Convey importance of: asking sexual history, assisting with decision-making, performing gentle exams, providing confidential care

3. Maximize Uptake of HPV Vaccines

- Parental education about HPV vaccines
 - Public health messages, educational materials for clinical settings based on existing research
- Provider interventions
 - Initiatives that focus on modifiable predictors of intention to vaccinate (knowledge, attitudes)
 - Educational materials for parents, adolescents
 - Strategies for addressing parental, adolescent concerns

Frontier Areas of Research

1. Effective adolescent, parent, provider education about new technologies to prevent HPV-related diseases
2. Adolescent adherence to Pap/HPV screening and follow-up
3. Acceptability and uptake of HPV vaccines
4. Utility of theoretical approaches
5. Additional contextual factors as they impact adolescent decision-making

1. Effective Adolescent, Parent, Provider Education

- Adolescents and parents
 - Identify educational needs, develop educational protocols for different settings (e.g. school-based, clinical) and public health messages
 - Evaluate impact on adolescent screening and immunization
- Providers
 - Identify educational and training needs, develop strategies to disseminate information
 - Evaluate impact on physician screening and immunization practices, adolescent vaccine uptake

2. Adherence to Pap/HPV Testing and Follow-up

- Investigate complex relationships between:
 - Paternal attitudes/screening behaviors
 - Paternal/adolescent communication about screening
 - Adolescent attitudes/screening behaviors
- Explore role of contextual factors in modifying psychosocial responses to HPV/Pap testing
 - Use findings to design interventions to prevent adverse consequences, promote screening and follow-up
- Determine roles of parents/providers in guiding and supporting adolescent decision-making

3. Acceptability and Uptake of HPV Vaccines

- Examine prospectively the process by which providers accept, implement vaccine guidelines
- Explore patterns and predictors of vaccine uptake in adolescents, monitor for disparities in uptake
- Determine behavioral impact of HPV vaccines in adolescents
- Design evidence-based, targeted interventions to:
 - Increase provider recommendations
 - Increase teen/parent acceptance, maximize uptake
 - Prevent adverse behavioral consequences of vaccination

4. Utility of Theoretical Approaches

- Use theoretical approaches in the design of research on adolescent decision-making about these technologies
- Compare the utility and validity of different theoretical approaches for adolescents
- Develop relevant measures that have been normed, validated in adolescents

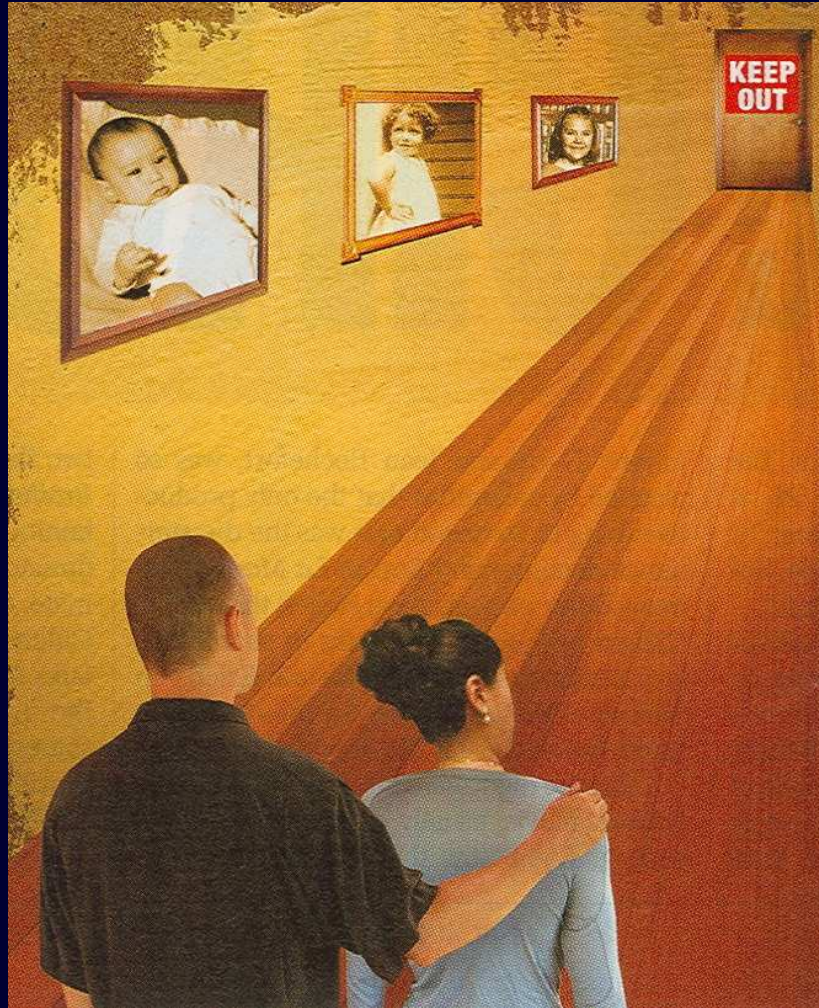
5. Additional Contextual Factors

- Examine role of broader contextual factors that remain largely unexplored with respect to adolescent decisions about these technologies
 - Other individuals (extended family, teachers, partners)
 - Organizations (religious, educational, social)
 - Cultural and social factors (race, ethnicity, religion)
- Examine patterns and barriers to utilization of new technologies among low-income and/or minority adolescents
 - Ensure that introduction of new technologies doesn't widen disparities in HPV-related morbidity, mortality

Summary

- New technologies could have a substantial impact on adolescent/adult health but present specific challenges for adolescents
- Families, health care providers, peers play important roles in adolescent decision-making
- Incorporating these and other contextual factors into health promotion/prevention programs may improve knowledge, increase adherence to CC prevention programs, maximize HPV vaccine uptake

Striking a Balance Between Providing Contextual Support, Promoting Independence



Ellen Weinstein
Time Magazine, 8/8/05