Supporting HPV vaccine in the internet age

Gina Ogilvie MD MSc
Associate Professor, University of British Columbia
British Columbia Centre for Disease Control

PICNet 5th Annual Education Conference
April 20, 2011

Clinical Prevention Services

UBC

BC Centre for Disease Control
An Agency of the Provincial Health Services Authority

No conflicts of interest to declare

Primary Prevention of Cervical Cancer

- Two vaccines approved in Canada
  - Gardasil™ (HPV-4)
    - ♀, 9-26 years of age for prevention of HPV infection (6, 11, 16 and 18)and related diseases (CIN, VIN, VaIN, GW)
    - ♂, 9-26 years of age for prevention of infection caused by HPV 6, 11, 16 and 18 and GW
  - Cervarix™ (HPV-2)
    - ♀, 10-25 years of age for prevention of HPV infection (16 and 18)and related diseases (CIN)

Vaccine Efficacy

- Both vaccines highly efficacious against the prevention of precancerous lesions (CIN2/3) related to HPV 16 or HPV 18

	HPV-4 N=16,957	HPV-2 N=14,656
HPV 16/18 related CIN 2/3 or AIS	**98.2% (93.5, 99.8)**	**98.1 (88.4, 100)**

Program Delivery Models

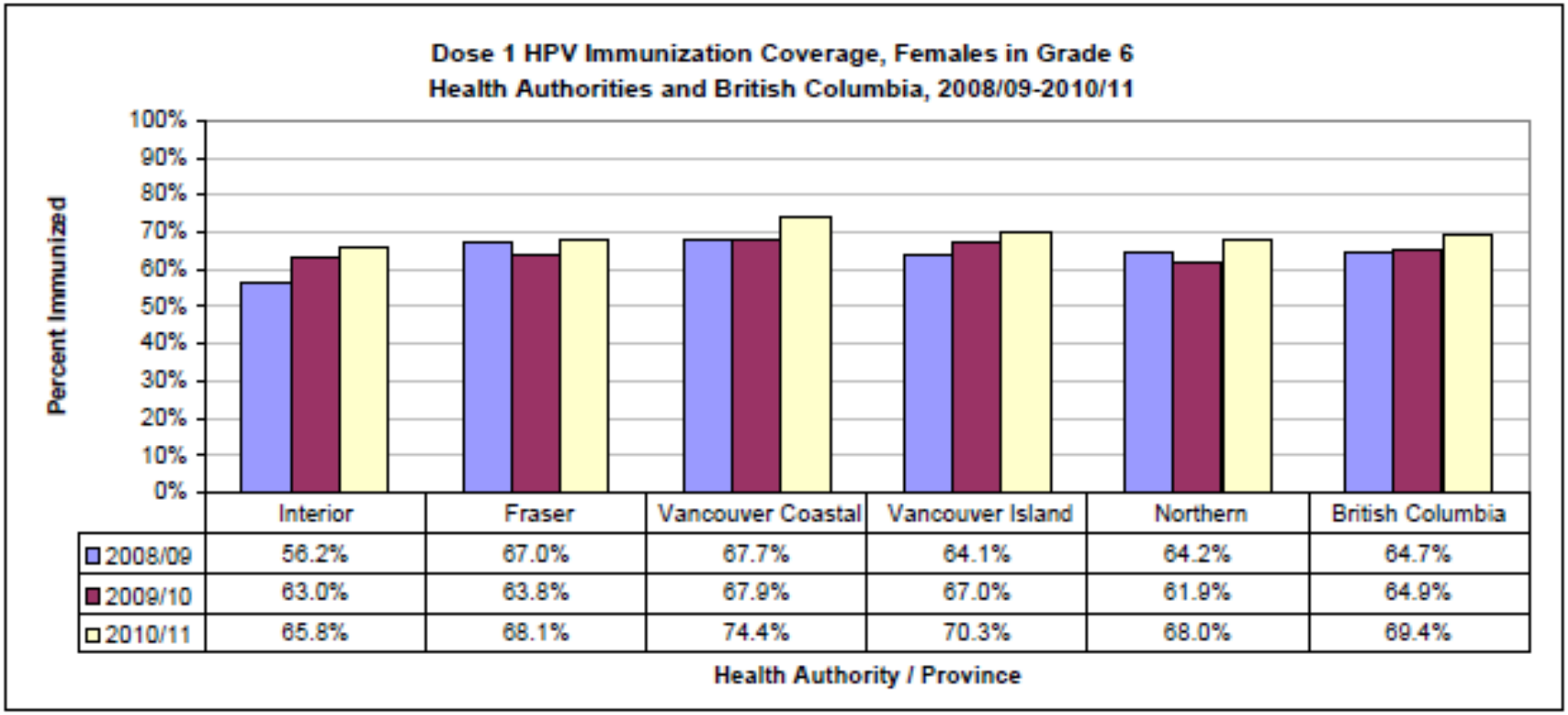
- Use of school based programs in Canada
- Important opportunity to ensure high uptake in the adolescent population
- Settings such as the United States where school based delivery is precluded experience much lower uptake of adolescent vaccines

Province	Program Start Year	HPV Program
BC	Sept 2008	Females: Grade 6; Catch Up: Grade 9
AB	Sept 2008	Females: Grade 5 Catch-up: Grade 9
SK	Sept 2008	Females: Grade 6 Catch-up: Grade 7
MB	Sept 2008	Females: Grade 6
ON	Sept 2007	Females: Grade 8
QC	Sept 2008	Females: Grade 4; Offered to Grade 9-17 year olds Catch-up: 3rd year of high school until 2013
NB	Sept 2008 Sept 2008-2009	Females: Grade 7 Catch-up: Grade 8
NS	Sept 2007	Females: Grade 7
PE	Sept 2007	Females: Grade 6
NL	Sept 2007, Sept 2008	Females: Grade 6; Grade 9
NT	Sept 2009	Females: Grade 4 Catch-up: Grade 9-12
YT	Fall 2009	Females: Grade 6 (3 doses) Catch-up: Grade 7; 8
NU	Winter 2009	Females: Grade 6

Provincial HPV Vaccine Uptake Rates

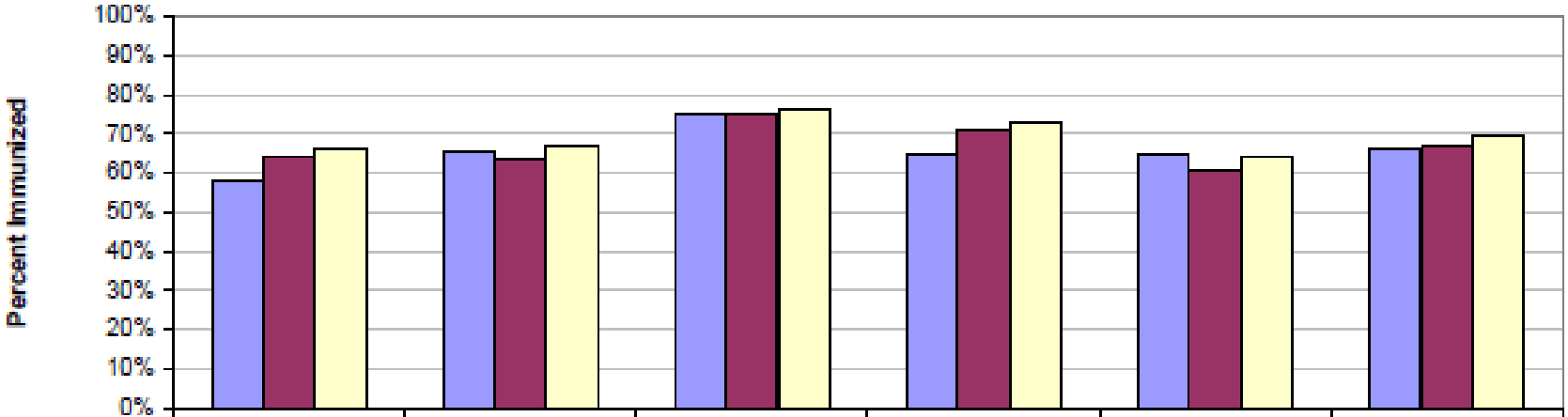
Province	Uptake Rate
British Columbia	67.5%
Alberta	50-55%
Manitoba	50-55%
Ontario	49%
Quebec	83%
Atlantic Canada	88%

HPV Vaccine in British Columbia



	Interior	Fraser	Vancouver Coastal	Vancouver Island	Northern	British Columbia
2008/09	56.2%	67.0%	67.7%	64.1%	64.2%	64.7%
2009/10	63.0%	63.8%	67.9%	67.0%	61.9%	64.9%
2010/11	65.8%	68.1%	74.4%	70.3%	68.0%	69.4%

Dose 1 HPV Immunization Coverage, Females in Grade 9
Health Authorities and British Columbia, 2008/09-2010/11



	Interior	Fraser	Vancouver Coastal	Vancouver Island	Northern	British Columbia
2008/09	58.2%	65.8%	75.0%	65.0%	65.0%	66.4%
2009/10	63.9%	63.9%	74.9%	71.0%	61.0%	67.1%
2010/11	66.1%	67.0%	76.4%	72.7%	63.9%	69.6%

What is going on?

- Lower HPV vaccine uptake rates than other vaccines
  - Substantial challenge and suspicion on implementation
  - Improved over first three years
  - Ongoing challenges with uptake

Provincial evaluation to inform decisions

- Better understanding of why parents choose to vaccinate or not vaccinate children
- Focused information to inform policies
- Need to consider specific elements for the HPV vaccine

Understanding factors influencing parental decision to have daughters receive the HPV vaccine in British Columbia: A population based survey

- Essential to consider the acceptability of vaccines, particularly HPV
  - Vaccine for sexually acquired infection
  - Considerable negative media regarding the safety of the vaccine
  - Canadian study showed that ~ 65% of parents intended to have daughters receive HPV vaccine, in the setting of a publicly funded program

Background

- With the introduction of the provincially funded HPV vaccine program, desire to understand factors that influenced actual parental decision to vaccinate

- Elected to conduct a real-time survey of parents to determine these factors

- Use information to inform and design programming for 2009/2010

Methodology

- Eligible parents identified through iPHIS between January 18th- March19th, 2009
- Sample stratified by Health Authority
- Sample size assumed 65% vaccine uptake rate for 95%CI +/-3% on estimates
- Parents contacted by telephone
- Ethics approval received from University of British Columbia

Results

- 5489 households contacted by TASC research services between January 18th-March19th, 2009
- 304 did not speak English
- 2054 agreed to complete the survey (50.5% response)

Health Authority	Provincial Total	Number Respondents	% Respondents	% Province†
IHA	3847	398	19.7	19.1
FHA	9072	870	43.0	45.0
NSCG (VCH)*	1504	167	8.2	7.5
VIHA	3848	374	18.5	19.1
NHA	1890	182	9.0	9.4
TOTAL	**20,161**	**2054‡**	**100.0%**	**100.0%**

†Based on % of total population of girls aged 11 years in province excluding Vancouver/Richmond (n=20,161)
‡10.2% of eligible families in province surveyed

*Vancouver/Richmond (not included) accounts for 14.6% (n=3453) of total provincial population of girls aged 11 years

Vaccine Uptake	Survey	Province
Hepatitis B Vaccine	88.4%†	87.4%
Meningitis C	86.5%‡	91.0%
HPV Vaccine	65.1%*	64.8%

†2.4% unsure

‡5.4% unsure

*Planning to have daughter receive the next dose of HPV vaccine – 97.5%

Characteristics of Respondents

- Respondents: 84.9% female
- Child received all childhood vaccines: 94.1%
- Ever heard of HPV: 92.7%
- Hx of cervical cancer: 4.0%
- Hx of abnormal Pap smear: 35.1%
- Education – more than HS: 77.2%
- Family composition – traditional: 76.2%
- Number of children – one or two children: 64.0%

Scale items and Reliability

Attitudes to Vaccines overall (5 items)

- Mean: 5.6; SD:1.0 - Cronbach's alpha: 0.83

Attitudes to Impact of HPV Vaccine on Sexuality (5 items)

- Mean: 5.5; SD: 1.1 - Cronbach's alpha: 0.68

Seriousness of HPV and Cervical cancer (4 items)

- Mean: 6.0; SD:0.7 - Cronbach's alpha: 0.54

Factors influencing uptake of the HPV vaccine

Main reasons for getting HPV Vaccine (n=1291)

- Effective in preventing cancer/HPV – 47.9%
- Physician advised me – 8.7%
- Concerned about daughter's health – 8.4%
- Consent to all vaccines, HPV no different – 7.2%
- Public Health Nurse advised me – 6.2%
- Family member/Friend with Cervical cancer – 3.1%
- Important to vaccinate prior to sexual activity – 2.5%

Ogilvie GS et al. PLoS Medicine – in press

Factors influencing uptake of the HPV vaccine

Main reasons for NOT getting HPV vaccine (n=707)

- Safety of the vaccine – 29.2%
- Prefer to wait till daughter is older – 15.6%
- Not enough information to make an informed decision – 12.6%
- Vaccine is too new – 6.9%
- Daughter not at risk for cervical cancer – 5.1%

Factors influencing uptake of HPV vaccine

- Main reason for delaying HPV vaccine
  - Prefer to wait for more safety data – 46.5%
  - Daughter not at risk for sexual activity – 26.6%
  - Prefer daughter to make decision herself – 8.8%
  - Publicly funded program available in Gr9 – 6.1%

Factors influencing uptake of HPV vaccine

- In women with history of cervical cancer, 76.3% (n=61) had daughter received HPV vaccine (vs 64.6%, p>0.05)

- In women with history of abnormal Pap smears, 68.0% (n=476) had daughter received HPV vaccine (vs 63.3%); p>0.05

Factors predicting uptake of HPV vaccine in BC

Predictors of HPV Vaccine Uptake	Adjusted Odds Ratio (95%CI)
Attitudes to Vaccines overall	8.5 (6.1; 11.9)
Impact of HPV vaccine on sexual practices	5.1(3.9 ; 6.7)
Childhood Vaccine History	1.7 (1.1; 2.5)
Family Composition	0.7 (0.5; 0.9)
Number of Children	0.8 (0.6, 0.9)
Education of respondent	0.6 (0.4; 0.8)

- Reason for delaying HPV vaccine related mainly to issue of safety information and parental desire for more information on vaccine safety

- More education is associated with being less likely to vaccinate
- Advice of health professionals (physicians, PHNs) very important in decision making
- Communication of safety data in context

Where do doubts emerge from?

- Vaccine efficacy very good
- Safety record impressive (fewer adverse events compared to other vaccines)
- Vaccine paid for, delivered conveniently and few system barriers

Process of HPV vaccine skepticism

- Sequence of vaccine skepticism (Kata, 2009):
  - Scientific 'debate' viewed as uncertainty
  - Rhetoric of doubt communicated
  - Parents incorporate doubt into personal experience
  - Parents spread views in social groups
  - Social groups exert considerable pressure locally
  - Local groups become global through internet

Canadian (?) HPV vaccine trajectory

– Scientific 'debate' viewed as uncertainty

Research

Human papillomavirus, vaccines and women's health: questions and cautions

Abby Lippman PhD, Ryan Melnychuk PhD, Carolyn Shimmin BJ, Madeline Boscoe RN DU

Published at www.cmaj.ca on Aug. 1, 2007. Revised Aug. 3, 2007.

HPV vaccine skepticism

- Sequence of vaccine skepticism:
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  - Rhetoric of doubt communicated

CBCnews

HPV vaccination program raises concerns in B.C.

New immunization program for girls in Grades 6 and 9 announced Monda

npr

HPV Studies Leave Questions Unanswered

NATIONAL POST

Controversial cancer vaccine stirs difficult debate

THE VANCOUVER SUN

Caution urged on vaccine for HPV

Most Ontario parents refusing HPV vaccine

cbc.ca

HPV vaccination plan should be halted, reviewed: researcher

globeandmail.com

Don't rush HPV inoculations, group says

How politics pushed the HPV vaccine

THE GLOBE AND MAIL

CANADA'S NATIONAL NEWSPAPER

Scientific breakthrough or unproven fix?

THE VANCOUVER SUN To market a drug

The Daily Telegraph

School refuses to promote promiscuity via HPV vaccination

Canadian Paediatric Society

Working for kids since 1922

Paediatricians stand behind HPV vaccine for Canadian girls

Services

Common Ground

Lock up your daughters Gardasil is on the loose


MICHAEL BUBLÉ
Singing sweet, talking dirty
P.46
FESCHUK'S SUMMER OSCARS
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BARBARA AMIEL: I'm home alone P.12
OUR GIRLS AREN'T GUINEA PIGS
A mass inoculation of Canadian girls against a sexually transmitted virus is under way. Experts say it's unnecessary—and potentially dangerous.
P.38
$5.95
www.macleans.ca

WESTCOAST NEWS THE VANCOUVER SUN, WEDNESDAY, MAY 2, 2007

THE DAILY SPECIAL

CONTROVERSIAL VACCINE

HEALTH | Many researchers say that Gardasil will not eradicate cervical cancer — not even guarantee protection from the virus —but that's not stopping women from getting the three-shot treatment

- Rhetoric of doubt communicated in a variety of media, but most powerful tool for communication now is the internet

The internet: A post-modern Pandora's box?

- Use of the internet as a key mechanism for communication of doubt
- 72% of Canadians are on-line, and 75-80% use the internet for health information
- 70% say the information on line influences their treatment decisions

Information and content on the internet

- No peer review, filter or ownership of opinions on the internet
- Anti-vaccination are more common on internet (Kata, 2009) than any other source of information
- Parents who exempt children from vaccination are more likely to have used certain anti-vaccination websites

Themes of 'anti-vaccine' websites

- Safety and effectiveness
  - Poisons, cause idiopathic illness, contain toxic and unregulated substances
- Need for alternative medicine approach to health – back to nature
- Civil liberties
- Conspiracy of medicine, regulatory bodies and industry

- Sequence of vaccine skepticism:
  - Scientific ‘debate’ viewed as uncertainty
  - Rhetoric of doubt communicated
  - Parents incorporate doubt into personal experience

How did parents who did not vaccinate their children decide?

- What was the decision process for these parents? (Guillon et al, 2008)
- Education level tends to be high in unvaccinated population in vaccine skeptics
- Sophisticated data collection efforts
  - Data from peer reviewed journals, other popular magazines (ie Mothering Magazine- 28%)
- Knowledge of someone who knows someone who was injured by a vaccine

- Often say they are open to both sides, but selective in vaccine use (depending on safety, perceived risk for child)
- Limited trust of 'expert' knowledge
  - Viewed specific health professionals as more knowledgeable (ie midwife over pediatrician)
  - Scientists, physicians biased
  - Health care providers have only one opinion
  - Can analyse data better than experts

- Sequence of vaccine skepticism:
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- In both BC based studies and other studies, vaccine skeptics are often highly educated
- Often local opinion leaders, and their opinion is highly valued and sought after by peers
- Broad sphere of influence, comfortable sharing their opinion

Commentary - CBC

- On January 12, 2011 the Annals of Medicine published a ground-breaking peer-reviewed paper titled, Human papillomavirus (HPV) vaccine policy and evidence-based medicine: Are they at odds?, written by renowned researchers Lucija Tomljenovic, Ph.D.,and Christopher Shaw, Ph.D., with the Neural Dynamics research Group, University of British Columbia, in Vancouver.
- The article points out to the medical community what most consumers now know about the fraudulent global health agency policies in combination with the pharmaceutical companies lack of science based evidence demonstrating the safety and efficacy of Gardasil and Cervarix before they were unleashed on unsuspecting parents of adolescents.
- http://www.cbc.ca/news/yourcommunity/2012/04/should-boys-have-access-to-free-hpv-shots.html

- these vaccines haven t been around for a long time, and can cause major damage. i think the gov t is using canadian children to test these vaccines.in the 60 's quebec doctors was testing and prescribing thalidomide to pregnant women,even though german tests had proven that there was damage to the fetuses.so parents beware,there is no way of knowing how this vaccine will affect the next generation[i e your grandchildren] teach your children about the diseases transmitted through sex and tell them of use of condoms to protect oneself.

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Cyberpolarization

- Belief that the Internet promotes dissemination of information to create a better informed and less biased electorate
- In fact, opposite emerging as well - technologies are entrenching people more in their beliefs and views

Cyberpolarization

‘There is virtually no opinion an individual can hold that is so outlandish that he will not find other believers on the Web.

‘Views that would ordinarily dissolve, simply because of an absence of social support, can be found in large numbers on the Internet, even if they are understood to be exotic, indefensible, or bizarre in most communities…’

Sunstein CR. ‘On Rumors: How Falsehoods Spread, Why We Believe Them, What Can Be Done’

Was this the experience in all Canadian jurisdictions?

Province	Uptake Rate
British Columbia	67.5%
Alberta	50-55%
Manitoba	50-55%
Ontario	49%
Quebec	83%
Atlantic Canada	88%

New challenges: education for vaccines in the internet age

- How do we frame ‘scientific’ debate so that it is understood as part of discourse vs doubt?
- How do we create a ‘personal experience of prevention’ for parents?
- What factors are important for parental decision making?
- How do we make sure that positive vaccine messages also on the internet?
- How do we create educated health information consumers on the internet?

Thank You