

This article was downloaded by: [Dalhousie University]

On: 18 January 2012, At: 05:38

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Health, Risk & Society

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/chrs20>

### Risk, choice and the 'girl vaccine': Unpacking human papillomavirus (HPV) immunisation

Amrita Mishra<sup>a</sup> & Janice E. Graham<sup>a</sup>

<sup>a</sup> Technoscience & Regulation Research Unit, Department of Pediatrics (Infectious Diseases), Dalhousie University, Halifax, NS, Canada

Available online: 18 Jan 2012

To cite this article: Amrita Mishra & Janice E. Graham (2012): Risk, choice and the 'girl vaccine': Unpacking human papillomavirus (HPV) immunisation, *Health, Risk & Society*, 14:1, 57-69

To link to this article: <http://dx.doi.org/10.1080/13698575.2011.641524>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

## Risk, choice and the ‘girl vaccine’: Unpacking human papillomavirus (HPV) immunisation

Amrita Mishra and Janice E. Graham\*

*Technoscience & Regulation Research Unit, Department of Pediatrics (Infectious Diseases), Dalhousie University, Halifax, NS, Canada*

*(Received 19 September 2011; final version received 3 November 2011)*

The marketing of Gardasil<sup>®</sup> and Cervarix<sup>™</sup> vaccines for the prevention of human papillomavirus (HPV) targeted pre-sexual girls and cervical cancer, representing young women as practicing ‘decision autonomy’ in acquiring the ‘facts’ about HPV and cancer. We challenge this overly simple explanatory model of vaccine choice. Through interviews with vaccine scientists and public health nurses in Canada, we illustrate the clinical, political and practical complexities of introducing a new and controversial vaccine. The omission of provocative sexual themes in the marketing of the vaccine strategically created an object marked for ‘women only’. The public acceptability of the vaccine was promoted by neglecting the clinical and sexual facts of the spread and prevalence of HPV infection and related cancers across genders and sexual orientations. This strategic omission generated a blockbuster vaccine embedded in a discourse of individualised risk and pharmaceutical control centred on female bodies.

**Keywords:** human papillomavirus; vaccine; risk; heteronormative; gender; choice

### Introduction

The implementation and reception of a new vaccine is influenced by the complex interactions of actors in scientific, clinical, policy, marketing and social environments (Munira and Fritzen 2007). The Gardasil<sup>®</sup> and Cervarix<sup>™</sup> vaccines, approved in 2006 for the primary prevention of Human Papillomavirus (HPV) types 16 and 18 (implicated in 70% of cervical cancers), have attracted reactions ranging from fervent approval to outright hostility. Commentators have paid less attention to the fact that they protect against genital warts caused by HPV 6 and 11 as well as respiratory papillomatosis, and head, neck, anal, penile, vulvar and vaginal cancers (Muñoz *et al.* 2004, Franco and Harper 2005, Cutts *et al.* 2007, Frazer 2010, Centers For Disease Control and Prevention (CDC) 2010a).

In Canada, the setting of this study, HPV vaccine is recommended for Grade 7 (11–13 year old) girls and made available in school (Comeau 2007, National Advisory Committee on Immunization (NACI) 2007). At this age, school dropouts and sexual activity are relatively limited (NACI 2007). The vaccine attracted criticism for the unusual speed of its rollout, which arguably precluded wide consultation and prior knowledge sharing with stakeholders at the provincial and territorial levels (Lippman *et al.* 2007, Haas *et al.* 2009, Mah 2009). However, the implementation of the HPV

---

\*Corresponding author. Email: [janice.graham@dal.ca](mailto:janice.graham@dal.ca)

vaccine alongside older, familiar vaccines (Hepatitis B Virus (HBV), Tetanus–Diphtheria–acellular Pertussis (TDaP)) through credible public health mechanisms may have softened the controversy caused by the accelerated rollout (Scheifele 1998, Government of Nova Scotia 2007, NACI 2007). Public health messages framed HPV immunisation as empowering young girls in the prevention of cervical cancer.

HPV vaccine effectiveness is associated with ‘pre-coital’ immunisation. A three-dose regimen (currently costing approximately US\$ 360) is administered, ideally before first sexual encounter, to recipients who are ‘immunologically naïve’, DNA and serologically negative for the targeted HPV types (Markowitz *et al.* 2007, NACI 2007, CDC 2010b). Many parents, however, challenge this clinical rationale for pre-adolescent immunisation as undermining parental roles and rights over their children. Thus, in 2007, the move to make Gardasil immunisation mandatory in the US attracted criticism and controversy. The juxtaposition of government sanctioned mandatory immunisation with the manufacturer’s aggressive marketing campaign suggested that corporate interests had been co-opted into health policy (Haber *et al.* 2007, Wailoo *et al.* 2010, Dickerson *et al.* 2011). The vaccine was linked to commercial profit and parlaying of consumer desire, separate from wider considerations of public health. In 2011, US electoral candidates were divided over the acceptability of state involvement in HPV immunisation and management of adolescent sexuality (Colgrove 2006, Colgrove *et al.* 2010, Heffernan *et al.* 2010, Gabriel and Grady 2011).

Internationally, the delivery of HPV immunisation reflects varying health priorities and policies. The vaccine is offered through public health services in Denmark, France, Germany, Italy, Spain, the Netherlands, and the UK (Koulova *et al.* 2008, Lévy-Bruhl *et al.* 2009, Watson *et al.* 2009, Crosbie and Brabin 2010, Stöckl 2010). In the US, HPV immunisation is available outside the school system, largely in private clinics. Uninsured adolescents can obtain the vaccine free through the Vaccines for Children (VFC) programme (Dickerson *et al.* 2011). In developed and developing economies, impoverished youth are largely outside the reach of school and social services. Multilateral negotiations between donor alliances, manufacturers and governments facilitate the bulk purchase and supply of the vaccines in low-income countries (Kane 2010).

### **Theoretical framework**

Our examination of HPV immunisation draws on Michel Foucault’s approaches to governmentality and disciplinary technologies of the self (Foucault 1995, 1998, Foucault and Faubion 2000). In this view, the techniques and knowledge of population health are conjoint with the exercise of state power over citizens. The Foucauldian approach to the links of power, knowledge and discipline suffers, however, from a general inattention to the role of gender in projects of control (Ramazanoglu 1993, Hekman 1996). Our interviews of Canadian vaccine experts and immunisation practitioners address this gap. We suggest that HPV immunisation is a key example of the deeply gendered control and surveillance of bodies and bodily risk.

HPV risk discourse enables and is sustained by sociotechnical practices around a complex, multi-strain, widely prevalent pathogen. Since the first systematic studies of uterine cancer causality by Rigoni-Stern in 1842, this discourse has increased in reach and depth, albeit in discontinuous ways across scattered sites (Braun and Phoun 2010). Psychometric studies of knowledge, attitudes and behaviour, along with advocacy campaigns that include the social marketing of cervical screening, have

co-produced utilitarian ideas of 'rationalistic' health behaviour. Lifestyle data are used to generate estimations of uterine disease risk. These, in turn, are used for the promotion of evidence-based technologies of bodily discipline and surveillance, for example, cervical screening and HPV immunisation. Responsible individuals supposedly acquire expert-validated knowledge of risks and proceed to an unquestioning compliance with dose schedules, clinical interviews, screenings or other risk-reducing measures. We challenge this linear representation of people's engagements with projects of risk reduction, such as HPV immunisation. HPV immunisation contributes to individuals questioning their own bodies, sexualities and beliefs, and those of their children. This interrogation of self and others renders HPV immunisation a site of anxiety and contestation rather than the outcome of simple acquiescence.

As with pre-natal testing and cervical, bone, ovarian and breast screening, the responsibility to get immunised against HPV burdens women with a commitment to good prophylactic behaviour (McKie 1995, Howson 1999, Bush 2000, Reventlow *et al.* 2006, Wieser and Karner 2006). The biomedical literature on cervical screening and HPV immunisation is laden with connotations of women's duty to self-monitor (insistence on 'compliance') and, conversely, their self-inflicted risk from acts of commission (representation of 'promiscuity' and 'multiple partners' as a risk factor) and omission ('failure to report' for screening measures). Men, on the other hand, remain in the background as 'parents, bystanders, protectors/supporters, gatherers and guardians of fact, and deciders or enforcers' (Locock and Alexander 2006, p. 1349).

The depiction of HPV vaccine as prophylaxis has focused almost exclusively on its role in preventing cervical cancer, ignoring penile, anal and oral cancers. This silence is rationalised by epidemiological estimates (i.e. the higher prevalence of cervical cancer), although it has as much to do with homophobia and sexual moralities (Epstein 2010). This heteronormative marking and marketing of the HPV vaccine in the first years of its introduction comes to the foreground in the clinical assumption that HPV immunisation *for girls* could ensure herd immunity. The rationale and administration of HPV immunisation sustain specific clinical concepts of gender identity centred on the possession of a uterine cervix. Possession of an 'innately female' biological body part is the clinically endorsed criterion for inclusion in a government-sponsored immunisation cohort. The net effect is the labelling of HPV immunisation as 'the girl vaccine'.

## Methods

Our qualitative study explores the views of a small convenience sample of Canadian vaccine scientists and healthcare providers. We conducted semi-structured, in-depth, English-language interviews with 15 Canadian health professionals between September 2009 and January 2010.

### *Participants: inclusion criteria*

The participants included six nurses, two public health officials, six vaccinologists (physician trained clinical scientists) and one health lawyer. As healthcare practitioners and direct observers in vaccine research, clinical trials, and clinical and school-based immunisation settings, these were expert informants who extended our reach into locations and situations where we did not have direct access.

The vaccinologists were employed in a university research setting. They worked closely with public health officials and sat on provincial, national and international vaccine advisory committees. Several informants had been part of high-level policy discussions around HPV vaccine implementation in Canada and Nova Scotia.

Four of the nurses worked in school-based immunisation programmes, one in vaccine trials in a clinical research unit, and one in a non-profit reproductive health clinic. In Canada, public health nurses are key figures in immunisation. Working in public health centres in district health authorities, they organise immunisation clinics during the school year, maintain cold chains and provide health advice and information to the public. Adolescent immunisations are delivered through the co-ordinated efforts of the public health and school system (Scheifele 1998).

The public health nurses in our study worked with Nova Scotia school authorities such as the Halifax Regional School Board to organise immunisation clinics in schools. School-based adolescent immunisation is a response to waning immunity from childhood immunisations, the need for boosters, and fewer clinic visits (Hernandez and Nestor 2006, Mackroth *et al.* 2010). Access to school-going teenagers facilitates delivery of multi-dose immunisations against HPV and Hepatitis B. In Nova Scotia, the introduction of HPV vaccine for girls led to the clustering of multiple vaccines in Grade 7 (Government of Nova Scotia 2007). These include TDaP, Meningococcal Group C Conjugate, HBV and HPV. The nurses suggested that this clustering enhances management efficiencies, reducing the need for separate trips throughout the year to administer different vaccines.

### ***Ethics***

The Research Ethics Board of the IWK Health Centre, Halifax, Nova Scotia, Canada, approved this minimal-risk non-clinical study. All notes, transcripts and recordings were anonymised and stored in secure facilities.

### ***Recruitment***

Nurses and the health lawyer were recruited through posters circulated through health professional online listservs and at hospitals and clinics. Vaccine scientists and public health officials were recruited through targeted emails.

### ***Interviews***

The vaccinologists and public health officials were asked to describe policy changes and challenges for Canadian school-based immunisation following the introduction of HPV immunisation. Nurses were asked to describe (i) their experience and the practical challenges of administering HPV immunisation in Nova Scotia school immunisation clinics, (ii) their attitudes to and awareness of discussions around HPV vaccines and (iii) their conversations with parents, teenagers, and their own families and peers about HPV immunisation and cervical screening.

### ***Analysis***

The interviews were 30- to 60-min sessions recorded on a digital audio recorder. Our thematic analysis of the transcripts involved iterative reading, discussion and critical verification for corroboration, saturation and differences. We authenticated

the thematisation and analysis of the raw data through consultation with the participants. The data from each key informant also served as a check on the information obtained from other informants.

## Findings

### *Defining HPV as a risk*

We asked the clinical scientists about public, scientific and policy-level awareness of HPV and cervical cancer before and after the introduction of the vaccine. They suggested that media representations may have enhanced the new social prominence of the pathogen while triggering public suspicions of the vaccine:

My reading of the media coverage was that it was perceived as an experiment on young girls who didn't have the ability to give consent. You know... the cover of *Macleans* [Gulli 2007] with a little 11-year old girl on the front cover 'are we using our girls as guinea pigs' and the way it was portrayed, it displayed a lack of understanding by the media about public vaccination programmes in general. [*Vaccinologist*]

In Canada, the accelerated rollout of the vaccine triggered controversy in the absence of a communications programme to 'socialise the vaccine' through debate and discussion in public forums. Participants suggested that political agendas trumped the usual public health deliberations and locked out competing health priorities. This view resonates with media and academic reports that have attributed the accelerated vaccine rollout in North America to interest in commercial profit rather than the protection of public health (Rothman and Rothman 2009, Colgrove *et al.* 2010, Forster *et al.* 2010).

The science is good, but I think there is *a socialization of any idea*... The approval process for the vaccine really happened outside of the provinces being engaged, or even the federal advisory groups being engaged... it was really that government. To the public, it seemed out of the blue that there would be federal funding for this programme and there really wasn't the preparatory groundwork to increase public understanding about HPV disease so that people understand what the disease is that's being prevented not just the risk associated with the vaccine. The preparatory work would have been to increase public understanding about HPV disease and then to look at programme options in a public way, like would you want it school-based, should it be offered in doctors' offices, what kind of consent process would work for adolescent girls, does the Hepatitis B model work... People were suspicious that there would be this federal funding and you know what happened. All the negative publicity and the effect on programme implementation. [*Vaccinologist*]

One clinical scientist suggested that focus moved from the detection of HPV-related disease (epithelial atypia, pre-cancerous lesions and cervical neoplasms) to the blocking of the viral agents. The widespread lack of awareness of the virus and related disease before the marketing of the vaccine underlines the significant role of negotiations of meaning and evidence in defining a risk object. Technological innovation (e.g. vaccines), expert claims, media reportage, and public audiences helped create the prominence of HPV as a public health risk. Thus, there may have been a 'paradigm shift' in clinical conversations around HPV (Franco and Harper 2005).

Before the vaccine was available there was much lack of knowledge about HPV and the reason for that was, what was the need for knowing about the virus specifically? At that point cervical cancer was an issue and screening was important and early screening and monitoring for cervical dysplasia was important to prevent cancer. It didn't really

matter that a virus was causing that cervical dysplasia. . . . So 10 years ago, if we had started talking about HPV, people would turn off. [*Vaccinologist*]

***Between women: advocating the ‘anti-cancer vaccine’***

While mention of the brand name of the pharmaceutical product (e.g. Gardasil, Cervarix) to teenagers and parents is not acceptable, nurses describe HPV as synonymous with cervical cancer, and HPV vaccine as a measure against cervical cancer. In clinic interactions, one nurse describes the vaccine as a prophylactic ‘cure’ for cancer. This celebratory rhetoric elides the uncertainties of progression from viral infection to invasive disease and suggests that the vaccine is a straightforward solution to an easily curbed disease.

I think it’s wonderful that we have an opportunity to be vaccinated and protect ourselves against HPV virus that can cause cancer. I say that to them all the time. . . . *I said finally we have something that can cure cancer before it happens.* Like, you know, we have a cure for cancer. We’ve always wanted *a cure for cancer*, right? And so I tell the children how lucky they are to be in this generation, to have an opportunity to have a vaccine that protects themselves potentially from a cancer. [*Nurse*]

Industry-driven ‘educational measures’ to build HPV vaccine approval among parents, nurses and female health advocacy groups promoted the vaccine as an anti-cancer measure. While direct-to-consumer advertising is prohibited in Canada, industry-funded motivational speakers deliver lectures about HPV and cervical cancer in schools. These lectures are powerful and poignant invocations laden with personal accounts intensifying parents’ fears for their children’s health. At the same time, health advocacy appears dissociated from commercial interest.

The second year we did HPV, we brought [a woman whose best friend died of cervical cancer] to many of our local schools. And she, she actually was hired by the company, for the first two years I think it was, by Gardasil to do presentations to schools, to youth and to parents to talk about the devastating effects of this particular virus and how, you know, it gets into your body and how you can prevent it, and the importance of Pap testing and all that kind of information. So we did a really big PR thing two years – well, it was last Fall, actually. And we had her come to a number of schools in our district, as well as a couple of the other districts that we’re linked with in the region. . . . I don’t think any parent who heard her presentation would ever refuse the vaccine. Because it’s so, it touches your heart. It, you know, it’s reality based and it makes you think, oh my gosh, if I could prevent my daughter from possibly getting this by vaccinating her, you know, there’s no question they would sign the form. [*Nurse*]

Administered by mainly female nurses to a cohort of young girls, HPV vaccines are key actors in a performance that joins risk discourse to enactments of femininity. A nurse emphasised that, regardless of gender identity or sexual orientation, the possession of the uterine cervix is crucial for HPV vaccine eligibility. The pre-immunisation information and consent forms do not raise or discuss the matter of HPV immunisation for teenagers in or contemplating gender transition.

Would lesbians still be eligible? . . . If you have a cervix, you can have it. Bottom line. . . . I mean if there are two gay men, they’re not eligible anyway, right? . . . We did have concern about the [*parental information and consent*] forms not indicating transgender. When it says gender, it just offers male and female. Not that a 12 year old would be going through a transgendering process probably at that point because they’re still too

young, I would think. But certainly a grade 10 student... But our, I guess the final answer is where you are in your process doesn't matter – it's whether or not you have a cervix... So you may look like a male, but you may have been a female by birth according to what your gender assignment was, but you have transgendered to male, you're eligible for HPV vaccine if you still have your cervix. [Nurse]

The nurses' own biographies are persuasive examples in endorsing the vaccine in and outside the work context, to their friends, colleagues and significant others. Received accounts of HPV and cervical dysplasia/cancer are also important in their acceptance and emphatic advocacy of HPV immunisation.

Two of my sisters have girls that are just eligible for that vaccine now. And I said, you make sure you get your daughter to get that, and no questions asked. And they're like, really? You really think she should? Yes, I think she should. Absolutely. So I was very strong with my own friends and family. I've had a number of people in my age cohort that have had cervical cancer or dysplasia or difficult, irregular cells and had to have all kinds of treatment, and not been able to have children. [Nurse]

### *Needle anxiety and the 'girl vaccine'*

Immunisation is a liminal event, an encounter with clinical authority in which a healthy person undergoes an alteration of body margins, to get a 'shot' of a foreign agent that fights the risk of disease. The fear of pain and for one's physical integrity is a powerful actor in the encounter. Our participants suggested that vaccine anxiety, spurred by a fear of needles, is apt to spread quickly across groups of adolescent girls, in a 'domino effect' that can destabilise adolescent immunisation clinics. Thus, nurses took extra care to reassure and soothe the girls about HPV immunisation, which the girls described to the nurses as especially painful. In classroom presentations and in conversations with the girls, the nurses emphasise 'maturity', agency and 'choice' in getting the vaccine.

Consistently, after it is administered, it is one of the most complained about vaccines that I have ever given. The other kids come in knowing that one hurts more than the other one, so they have preconceived anxiety because they've heard the other girls talk about, oh that one hurts more. *The girl vaccine, they call it sometimes*, hurts more than the other one. [Nurse]

And there are some that, you know, you'll call their name and they won't come down at all. There's others who will come down but they'll refuse to walk over to where the nurse is. There's some that, you know, you can talk them into just come and sit down and we'll talk about it. But the one thing we do emphasize is, we're not going to sit on you. We're not holding you down. You are old enough and mature enough to sit on your own to get this done. So this is your decision. [Nurse]

The nurses control the movement of people through and within the immunisation space, usually the large and easily monitored space of the school gym, which is cordoned with physical dividers. The management of the flow of students between the site and the classroom allows time to share information with the teenagers, provides an opportunity to observe them for post-immunisation reactions, and limits the spread of anxiety. After immunisation, the girls are given juice and cookies during 'recovery'. The giving of food is a versatile technique for managing the social risks inherent in the immunisation encounter, in controlling the spatial and temporal order of a rite of passage (Gennep 2007). Food reassures, rewards and signposts the social value of enduring needles and participating in the responsible activity of risk reduction. The cookies carry messages about the rationale of HPV immunisation

and the link between sex and HPV transmission. Reward in the form of food disposes the teenager to share information in a positive way with peers and is a most effective vehicle for health promotion.

We provide information usually in the recovery area, and one of the things that we're doing in that particular school when they get their juice, they're going to have a cookie and on that cookie it's going to have a little message – HPV has, uh, if you ever have sexual encounters, or something like that . . . if you've ever had sex, you can be exposed to the HPV virus. It's just a simple little message on each, it's going to be a little sticker on each cookie. So if they, again, understand that they just got a needle, oh that's what that's about. [*Nurse*]

## Discussion

The arguments over HPV vaccine represent struggles over choice of disciplinary techniques (vaccine or parental influence) on the 'docile bodies' of young girls (Foucault 1995). Thus, a poster issued by the province of Quebec in August 2011 jocosely urges rational-minded 'modern' parents to choose HPV immunisation over mediaeval-style chastity belts to protect their daughters (Government of Quebec 2011). Inclusion in Canadian government-sponsored programmes of Pap screening and vaccination is contingent on the clinically certified possession of a uterine cervix ('If you have a cervix, you can have it. Bottom line'). Judith Butler (1990) suggests that gender identity is the effect of lifelong cultural performance, of 'happening' rather than fixed being. The administration of screening Paps and the 'girl vaccine' are *gendering performances*, enactments of the idea that femaleness is a 'non-negotiable' consequence of 'natural' anatomy. The 'naturalisation' of femaleness enables the programmatic control of 'female' bodies (Martin 2001). Thus, selves, others, organisations, institutions and pathogens are brought together in the clinical risk discourse around the uterine cervix.

This linkage, however, is exactly what makes HPV vaccines contested objects, subject to the varied interests, interpretations and actions of different actors. An epistemic struggle over the status of the vaccines as risk objects persists. While scientists provide evidence that HPV vaccines are safe and effective, some parents and social-moral conservatives view them as threatening social risks that lie outside the scope of clinical assessment. The divergence of lay and expert perspectives is linked to diminished trust in health systems and services, conspicuous in the MMR (Measles–Mumps–Rubella) vaccine controversy in the UK (Petts and Niemeyer 2004, Alaszewski and Brown 2007). The clinically approved object against risk is easily translated into an object of social risk.

The reception of a new vaccine is the product of a complex interplay of science, marketing, healthcare policies and practices, media representations and social perceptions. Unlike therapeutic drugs, which target an active disease or condition, vaccines intervene against an absent disease; the 'immunologically naïve' derive protection. Lupton (1993) and Colgrove (2006) suggest that ontological disorientation can occur with seeking prophylaxis in the absence of an actual malady or sense of urgency. With HPV immunisation, these dilemmas are complicated by surrogate decision-making. Parents must consider information about HPV risks and immunisation, vaccine cost and accessibility, and must weigh the congruence of the vaccine with their personal histories, relationships and beliefs about care, protection, and parenting (Steenbeek *et al.* 2011). Further, with adolescent

immunisation, the role of parents as decision makers is more ambiguous and contestable than with infant or child immunisation. Our nurse participants stated that while they formally request parental consent for immunisation, adolescents could technically decide on their own healthcare and obtain immunisation. This fragmentation of decision-making can generate disputes over adolescent immunisation. While in some cases, the healthcare provider may decide that the teenager can receive the vaccine even without parental consent, parents may contest this decision and teenagers may be reluctant or afraid to obtain a vaccine without their parent's approval. What happens if the teenager wants a vaccine that her parent refuses, or vice versa? Who adjudicates when the parents disagree among themselves over vaccines for their teenager?

The clinical rationales of HPV immunisation can be a source of cognitive dissonance for parents. Unlike childhood vaccines for measles, chickenpox, and tetanus–diphtheria–pertussis, HPV immunisation is recommended for pre-sexual adolescent girls, a liminal cohort associated with a constantly endangered purity (Douglas 2004). There is a schism between the way people read their body for signs of safety or danger and the manner in which clinical information is disseminated about HPV risk (Watson *et al.* 1996, Griffiths *et al.* 2010). Expert rationales for pre-coitarchal immunisation collide with social barriers between children (particularly girls) and sexuality and the reality of non-penetrative and non-heterosexual encounters. Ideas about preventing ‘moral danger’ contend with ideas about preventing disease risk. Moreover, perceptions of disease risk ‘depends on time span’ from infection to onset of symptoms (Douglas 1992, p. 18). HPV immunisation targets an asymptomatic viral infection acquired through intimate, usually sexual contact in the adolescent years. Cervical (as well as anal and oral) cancer is slow developing and occurs long after childhood. Parents, therefore, may not consider the vaccine as urgent for their children. HPV immunisation thus becomes the focus of ‘competing logics’ of risk assessment (Lupton 1999, p. 30).

Healthcare providers face the challenge of providing medically accurate information while handling the difficulties of talking to parents about the sexual–reproductive health of their children. Clinical talk about the virus and the vaccine seeks to deflect controversy through an elision of sex-related themes. The social marketing of the vaccine confers invisibility on sexual activity and STI among teenagers, depicting immunisation as a *cervical* cancer preventative and acquiring the moral and political traction associated with other prominent anti-cancer campaigns. The marketing focus on the disease is far less controversial than a focus on the sexual infection. The fear of cancer has greater social spread and depth than the fear of HPV, a virus that is still obscure outside clinical circles. The focus on cancer, however, is achieved via the neglect of a fine clinical detail. While HPV has more than 100 types and is a widely prevalent infection, cervical cancer is the relatively rare non-transmissible late-developing outcome of persistent infection with high-risk HPV strains (Muñoz *et al.* 2004, Cutts *et al.* 2007, Frazer 2010). These strategic marketing choices targeting girls render HPV immunisation a personalised ‘drug against risk’ (Aronowitz 2010). HPV vaccines are branded and rationalised in a way that makes them ‘blockbuster vaccines’, different from older vaccines which have been ‘the poor cousins of the pharmaceutical industry’, possessing moral authority in protecting the ‘body public’ but not tailored to individual choice and lifestyle considerations (Scheifele *et al.* 2007).

## Conclusion

The apparatus and actor-networks of cervical risk management exhibit constant expansion, fragmentation, consolidation, disagreements and consensus. Professional bodies of obstetricians and gynaecologists incrementally revise practices of cytology, test reportage, and clinical recall-and-reminder (Howson 2001). HPV risk definitions expand, including, for instance, vertical transmission of HPV 16 from mothers to infants (Cason and Mant 2005). The introduction of immunisation brings new dilemmas for healthcare providers and patients. Are two doses of the vaccine as effective as three doses? If a young girl has completed HPV immunisation, should she continue to get Pap tests? When should these start and how often should they be done? Will she need boosters, and how often? Where can she get these? Will health plans cover the cost of boosters? What should be the follow-up for immunised women with ambiguous Pap results? What should be the appropriate care for older women? Despite these shifts and attendant uncertainties, the gaze and discourse of cervical risk management remain firmly trained on women and away from men.

In sidelining male risks with HPV exposure, both the clinical and the parental beliefs contain unexamined heterosexist ideas about female vulnerability, naïveté and compliance. The uncritical solidification of the identity of the HPV vaccine as the 'female vaccine' exemplifies the biomedicalisation of women's bodies, which are represented as instruments of reproductive efficiency or receptacles of potential chaos, whose performance can be optimised via pharmaceutical means (Martin 1988, Clarke *et al.* 2003, Mamo and Fosket 2009). Four years after the vaccine's original approval, in October 2011 the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) recommended routine HPV immunisation of 11–12 year old boys. Rationalised in terms of cost-effectiveness, this has been seen as a largely reactive measure to compensate for the falling female vaccine uptake in the US. It pays little attention to the enduring effects of the early exclusion of males from HPV immunisation (CDC 2010a, Dickerson 2011, McKay 2011). The HPV's early identification as a girl vaccine depended on a moral sanitisation of the vaccine. This made it more acceptable during its initial introduction but distanced it from clinical and epidemiological realities. Creating a politically safe and palatable message for a receptive and desirable market trumps the scientific and clinical facts. In contemporary knowledge societies people are expected to proactively acquire and interpret knowledge (Stöckl 2010). But when increased access to knowledge may enhance anxiety and scepticism, or threaten acceptable norms, it may be kept silent.

## Authors' contributions

AM and JG conceptualized, designed and executed the study. AM selected the literature and drafted the manuscript. JG revised the manuscript. AM and JG read and approved the final manuscript.

## Acknowledgements

This work was supported by the Canadian Institutes of Health Research (CIHR Catalyst Grant CVC-99978). This project, '*Regulatory challenges to the development of new vaccines: Mapping emergent relations between science, evidence and policy*' was approved by the Research Ethics Board of the IWK Health Centre, Halifax, Nova Scotia, Canada.

## Abbreviations

ACIP, Advisory Committee on Immunization Practices; CDC, Centers for Disease Control and Prevention; HBV, Hepatitis B Virus; HPV, Human Papillomavirus; MMR, Measles-Mumps-Rubella; NACI, National Advisory Committee on Immunization; TDaP, Tetanus-Diphtheria-acellular Pertussis

## References

- Alaszewski, A.M. and Brown, P.R., 2007. Risk, uncertainty and knowledge. *Health, Risk and Society*, 9 (1), 1–10.
- Aronowitz, R., 2010. Gardasil: a vaccine against cancer and a drug to reduce risk. In: K. Wailoo, et al., eds. *Three shots at prevention: The HPV vaccine and the politics of medicine's simple solutions*. Baltimore, Maryland: Johns Hopkins University Press, 21–38.
- Braun, L. and Phoun, L., 2010. HPV vaccination campaigns: Masking uncertainty, erasing complexity. In: K. Wailoo, et al., eds. *Three shots at prevention: The HPV vaccine and the politics of medicine's simple solutions*. Baltimore, Maryland: Johns Hopkins University Press, 39–60.
- Bush, J., 2000. 'It's just part of being a woman': Cervical screening, the body and femininity. *Social Science and Medicine*, 50 (3), 429–444.
- Butler, J., 1990. *Gender trouble: Feminism and the subversion of identity*. New York: Routledge.
- Cason, J. and Mant, C.A., 2005. High-risk mucosal human papillomavirus infections during infancy and childhood. *Journal of Clinical Virology*, 32 (Suppl 1), 52–58.
- Centers for Disease Control and Prevention (CDC), 2010a. FDA licensure of quadrivalent human papillomavirus vaccine (HPV4, Gardasil) for use in males and guidance from the Advisory Committee on Immunization Practices (ACIP). *Morbidity and Mortality Weekly Report*, 59 (20), 630–632.
- Centers for Disease Control and Prevention (CDC), 2010b. FDA licensure of bivalent human papillomavirus vaccine (HPV2, Cervarix) for use in females and updated HPV vaccination recommendations from the Advisory Committee on Immunization Practices (ACIP). *Morbidity and Mortality Weekly Report*, 59 (36), 626–629.
- Clarke, A.E., et al., 2003. Biomedicalization: Technoscientific Transformations of Health, Illness, and U.S. Biomedicine. *American Sociological Review*, 68 (2), 161–194.
- Colgrove, J., 2006. The ethics and politics of compulsory HPV vaccination. *The New England Journal of Medicine*, 355 (23), 2389–2391.
- Colgrove, J., Abiola, S., and Mello, M.M., 2010. HPV vaccination mandates – Lawmaking amid political and scientific controversy. *New England Journal of Medicine*, 363 (8), 785–791.
- Comeau, P., 2007. Debate begins over public funding for HPV vaccine. *Canadian Medical Association Journal*, 176 (7), 913.
- Crosbie, E.J. and Brabin, L., 2010. Cervical cancer: Problem solved? Vaccinating girls against human papillomavirus. *BJOG: An International Journal of Obstetrics and Gynaecology*, 117 (2), 137–142.
- Cutts, F.T., et al., 2007. Human papillomavirus and HPV vaccines: A review. *Bulletin – World Health Organization*, 85 (9), 719–726.
- Dickerson, J.B., Smith, M.L., and Ory, M.G., 2011. Increasing uptake of Gardasil among American adolescents: Comparisons with the history of hepatitis B vaccination. *Human Vaccines*, 7 (2), 211–219.
- Douglas, M., 1992. *Risk and blame: Essays in cultural theory*. London: Routledge.
- Douglas, M., 2004. *Purity and danger: An analysis of concept of pollution and taboo*. London: Routledge.
- Epstein, S., 2010. The great undiscussable: HPV, anal cancer and gay men's health. In: K. Wailoo, et al., eds. *Three shots at prevention: The HPV vaccine and the politics of medicine's simple solutions*. Baltimore, Maryland: Johns Hopkins University Press, 61–90.
- Foucault, M., 1995. *Discipline and punish: The birth of the prison*. New York: Vintage Books.
- Foucault, M., 1998. *The history of sexuality, vol.1: The will to knowledge*. London: Penguin.
- Foucault, M. and Faubion, J.D., 2000. *Power*. New York: New Press.
- Forster, A., Wardle, J., Waller, J., and Stephenson, J., 2010. Passport to promiscuity or lifesaver: Press coverage of HPV vaccination and risky sexual behavior. *Journal of Health Communication*, 15 (2), 205–217.

- Franco, E.L. and Harper, D.M., 2005. Vaccination against human papillomavirus infection: A new paradigm in cervical cancer control. *Vaccine*, 23 (17–18), 2388–2394.
- Frazer, I., 2010. Human Papillomaviruses. In: A.W. Artenstein, ed. *Vaccines: A biography*. New York: Springer, 361–373.
- Gabriel, T. and Grady, D., 2011. In republican race, a heated battle over the HPV vaccine [online]. *New York Times*, 14 Sept. Available from: [http://www.nytimes.com/2011/09/14/us/politics/republican-candidates-battle-over-hpv-vaccine.html?\\_r=2&ref=health#](http://www.nytimes.com/2011/09/14/us/politics/republican-candidates-battle-over-hpv-vaccine.html?_r=2&ref=health#) [Accessed 14 September 2011].
- Gennep, A.V., 2007. *The rites of passage*. Chicago: The University of Chicago Press.
- Government of Nova Scotia, 2007. *HPV immunization launched* [online]. June 20. Available from: <http://www.gov.ns.ca/news/details.asp?id=20070620002> [Accessed 22 August 2011].
- Government of Quebec, Ministère de la Santé et des Services sociaux, 2011. *How to protect your daughter against HPV; Vaccine or chastity belt?* [online]. Available from: <http://www.vaccinvph.gouv.qc.ca/assets/vaccineorchastitybelt.pdf> [Accessed 30 August 2011].
- Griffiths, F., et al., 2010. Screening for breast cancer: Medicalization, visualization and the embodied experience. *Health*, 14 (6), 653–668.
- Gulli, C., 2007. Our girls are not guinea pigs: is an upcoming mass inoculation of a generation unnecessary and potentially dangerous? [online]. *Macleans*, 27 August. Available from: [http://www.macleans.ca/science/health/article.jsp?content=20070827\\_108312\\_108312&page=1](http://www.macleans.ca/science/health/article.jsp?content=20070827_108312_108312&page=1) [Accessed 22 August 2011].
- Haas, M., et al., 2009. Drugs, sex, money and power: An HPV vaccine case study. *Health Policy*, 92 (2–3), 288–295.
- Haber, G., Marlow, R.M., and Zimet, G.D., 2007. The HPV vaccine mandate controversy. *Journal of Pediatric and Adolescent Gynecology*, 20 (6), 325–331.
- Heffernan, M.E., Garland, S.M., and Kane, M.A., 2010. Global reduction of cervical cancer with human papillomavirus vaccines: Insights from the hepatitis B virus vaccine experience. *Sexual Health*, 7 (3), 383–390.
- Hekman, S.J., 1996. *Feminist interpretations of Michel Foucault*. University Park, PA: Pennsylvania State University Press.
- Hernandez, G. and Nestor, C., 2006. Educating teens about vaccines. *Journal of Pediatric Health Care*, 20 (5), 342–349.
- Howson, A., 1999. Cervical screening, compliance and moral obligation. *Sociology of Health and Illness*, 21 (4), 401–425.
- Howson, A., 2001. Locating uncertainties in cervical screening. *Health, Risk and Society*, 3 (2), 167–179.
- Kane, M.A., 2010. Global implementation of human papillomavirus (HPV) vaccine: Lessons from hepatitis B vaccine. *Gynecologic Oncology*, 117 (2 Suppl), S32–S35.
- Koulova, A., et al., 2008. Country recommendations on the inclusion of HPV vaccines in national immunization programmes among high-income countries, June 2006–January 2008. *Vaccine*, 26 (51), 6529–6541.
- Lévy-Bruhl, D., et al., 2009. The current state of introduction of HPV vaccination into national immunisation schedules in Europe: Results of the VENICE 2008 survey. *European Journal of Cancer*, 45 (15), 2709–2713.
- Lippman, A., et al., 2007. Human papillomavirus, vaccines and women's health: Questions and cautions. *Canadian Medical Association Journal*, 177 (5), 484–487.
- Locock, L. and Alexander, J., 2006. 'Just a bystander'? Men's place in the process of fetal screening and diagnosis. *Social Science and Medicine*, 62 (6), 1349–1359.
- Lupton, D., 1993. Risk as moral danger: The social and political functions of risk discourse in public health. *International Journal of Health Services*, 23 (3), 425–435.
- Lupton, D., 1999. *Risk*. London: Routledge.
- Mah, C.L., 2009. *Governing Immunization in Canada*. Thesis (PhD). University of Toronto, 138–156. Available from: [https://tspace.library.utoronto.ca/bitstream/1807/19058/1/Mah\\_Catherine\\_L\\_200911\\_PhD\\_thesis.pdf](https://tspace.library.utoronto.ca/bitstream/1807/19058/1/Mah_Catherine_L_200911_PhD_thesis.pdf) [Accessed 22 August 2011].
- Mackroth, M.S., et al., 2010. Immunizing school-age children and adolescents: Experience from low- and middle-income countries. *Vaccine*, 28 (5), 1138–1147.
- Mamo, L. and Fosket, J.R., 2009. Scripting the body: Pharmaceuticals and the (re)making of menstruation. *Signs*, 34 (4), 925–949.

- Markowitz, L.E., *et al.*, 2007. Quadrivalent Human Papillomavirus Vaccine: recommendations of the Advisory Committee on Immunization Practices (ACIP). *Morbidity and Mortality Weekly Report: Recommendations and Reports*, 56 (RR-2), 1–24.
- Martin, E., 1988. Medical metaphors of women's bodies: menstruation and menopause. *International Journal of Health Services*, 18 (2), 237–254.
- Martin, E., 2001. *The woman in the body a cultural analysis of reproduction*. Boston: Beacon Press.
- McKay, B., 2011. Panel urges HPV vaccine for boys [online]. *Wall Street Journal*, 26 Oct. <http://online.wsj.com/article/SB10001424052970204777904576653120787003308.html> [Accessed 26 October 2011].
- McKie, L., 1995. The art of surveillance or reasonable prevention? The case of cervical screening. *Sociology of Health and Illness*, 17 (4), 441–457.
- Munira, S.L. and Fritzen, S.A., 2007. What influences government adoption of vaccines in developing countries? A policy process analysis. *Social Science and Medicine*, 65 (8), 1751–1764.
- Muñoz, N., *et al.*, 2004. Against which human papillomavirus types shall we vaccinate and screen? The international perspective. *International Journal of Cancer*, 111 (2), 278–285.
- National Advisory Committee on Immunization (NACI), 2007. *Statement on Human Papillomavirus vaccine* [online]. Available from: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/07pdf/acs33-02.pdf> [Accessed 22 August 2011].
- Petts, J. and Niemeyer, S., 2004. Health risk communication and amplification: learning from the MMR vaccination controversy. *Health, Risk & Society*, 6 (1), 7–23.
- Ramazanoglu, C., 1993. *Up against Foucault: explorations of some tensions between Foucault and feminism*. London: Routledge.
- Reventlow, S.D., Hvas, L., and Malterud, K., 2006. Making the invisible body visible. Bone scans, osteoporosis and women's bodily experiences. *Social Science and Medicine*, 62 (11), 2720–2731.
- Rothman, S.M. and Rothman, D.J., 2009. Marketing HPV vaccine: Implications for adolescent health and medical professionalism. *JAMA – Journal of the American Medical Association*, 302 (7), 781–786.
- Scheifele, D., 1998. Universal childhood hepatitis B vaccination: infants vs. preadolescents, the Canadian perspective. *The Pediatric Infectious Disease Journal*, 17 (7 Suppl), 35–37.
- Scheifele, D.W., *et al.*, 2007. The challenges facing Canadian trialists in an increasingly competitive global market: what can be done to remain competitive? *Canadian Journal of Infectious Diseases and Medical Microbiology*, 18 (3), 205–215.
- Steenbeek, A., *et al.*, 2011. Ill-informed consent? A content analysis of physical risk disclosure in school-based HPV vaccine programs. *Public Health Nursing*. [online; pre-inclusion in issue] DOI: 10.1111/j.1525-1446.2011.00974.x [Accessed 31 October 2011].
- Stöckl, A., 2010. Public discourses and policy making: the HPV vaccination from the European perspective. In: K. Wailoo, *et al.*, eds. *Three shots at prevention: the HPV vaccine and the politics of medicine's simple solutions*. Baltimore, Maryland: Johns Hopkins University Press, 254–269.
- Wailoo, K., *et al.*, 2010. Vaccine timelines. In: K. Wailoo, *et al.*, eds. *Three shots at prevention: the HPV vaccine and the politics of medicine's simple solutions*. Baltimore, Maryland: Johns Hopkins University Press, xix–xxx.
- Watson, J., *et al.*, 1996. Lay theorizing about 'the body' and implications for health promotion. *Health Education Research*, 11 (2), 161–172.
- Watson, M., *et al.*, 2009. Challenges, lessons learned and results following the implementation of a human papilloma virus school vaccination program in South Australia. *Australian and New Zealand Journal of Public Health*, 33 (4), 365–370.
- Wieser, B. and Karner, S., 2006. Individualizing decisions: on the paradoxes of prenatal testing. In: B. Wieser, S. Karner, and W. Berger, eds. *Prenatal testing: individual decision or distributed action?* Munich/Vienna: Profil, 27–52.