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The application of Kingdon's Multiple Streams Theory for human papillomavirus-related anal intraepithelial neoplasia

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Abstract

Aims.—This paper presents a discussion of the advantages and disadvantages of redefining human papillomavirus-related anal intraepithelial neoplasia as a problem of sexually active people by using Kingdon's Multiple Streams Theory to examine possible policy solutions for increasing anal cancer screening.

Background.—Human papillomavirus is the most common sexually transmitted infection worldwide. Anal cancer associated with human papillomavirus infections is increasing in incidence in both men and women. The prevalence of anal cancer does not decrease with age.

Data source.—Pubmed was searched for articles and internet references from 1995–2012.

Discussion.—Although a large body of literature suggests that human papillomavirus-related anal intraepithelial neoplasia is a problem, no effective policy solutions have emerged. However, as almost the entire sexually active population is exposed to human papillomavirus, it should be thought of as every person's problem. This suggests that human papillomavirus-related anal intraepithelial neoplasia calls for different types of problem definitions and policy solutions to address the disease. The issue of anal cancer is typically defined as a problem of HIV-positive individuals.

Implications for Nursing.—Nurses are focused on improving patient outcomes. We play a key role in helping to identify problems, moving problems onto policymaker's agendas, and influencing the creation of new healthcare policies.

Conclusion.—Human papillomavirus-related anal intraepithelial neoplasia demands attention and the development of national level policies to ensure public health and safety. Kingdon's Multiple Streams Theory has provided a pragmatic framework to evaluate the problem.

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Author contributions

All authors meet at least one of the following criteria (recommended by the ICMJE: http://www.icmje.org/ethical_1author.html) and have agreed on the final version:

- substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
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No conflict of interest has been declared by the authors.

Keywords

anal cancer; HIV; HPV; HRA; Nursing practice; policy

Introduction

Human papillomavirus (HPV) is the most common sexually transmitted infection worldwide (Hessol *et al.* 2010). At least 75% of all sexually active individuals will be infected or diagnosed with one of the many HPV strains in their sexual lifetime (Buck *et al.* 2006, Hessol *et al.* 2010). There are more than 100 types of HPV and a subset of high-risk HPV, specifically HPV-16 and -18, have the potential to cause cervical and anal cancer (Palefsky *et al.* 1998, Da Costa *et al.* 2002). It is estimated in 2012, HPV is responsible for 6230 new cases of anal cancer and 780 deaths in both men and women in the USA (National Institutes of Health 1996, American Cancer Society 2011). In the past 30 years, incidence rates of anal cancer have jumped by 78% in women and 180% in men. Only, half of anal cancers are detected in their early stages when they are most treatable (American Cancer Society 2011). As a result, only 67% of people diagnosed with anal cancer survive five or more years after diagnosis (American Cancer Society 2011). These indicators help define HPV infection and HPV-related AIN as a significant problem both in the U.S. and worldwide.

The relationship between cervical HPV infection and cervical cancer has been appreciated for several decades. Anal intraepithelial neoplasia (AIN) is thought to be the precursor to anal cancer (Buck *et al.* 2006). AIN is caused by the same types of HPV that cause cervical dysplasia and cervical cancer. Anal cancer shares extensive biological similarities with cervical disease including anatomical localization of tissue type and an aetiological relationship with HPV (Palefsky *et al.* 1998). The approach to understanding the biology and natural history of anal cancer has therefore borrowed heavily from the interventions used to manage cervical disease. This includes HPV detection, cytology, and the adaptation of colposcopy for high-resolution anoscopy (HRA).

At one time, cervical cancer was the leading cause of cancer death for women in the USA (National Institutes of Health 1996). However, in the past 40 years, the number of deaths from cervical cancer has decreased significantly, due in large part to women getting routine Papanicolaou (Pap) screening (National Institutes of Health 1996). Anal cancer incidence is estimated to be as high as 37:100,000. This ratio is comparable to the incidence of cervical cancer in women before the widespread introduction of Pap screening (U.S. Department of Health & Human Services Health Resources & Services Administration HIV/AIDS Bureau 2011).

Incidence rates of HPV-related anal cancer are increasing in both men and women, and in certain high-risk groups including HIV-positives individuals and men who have sex with men (MSM) (Center for Disease Control & Prevention 2011). Although a large body of literature suggests that HPV-related AIN is a problem, no effective policy solutions have emerged (Hessol *et al.* 2010, Pokomandy *et al.* 2011, Simard *et al.* 2011). However, as almost the entire sexually active population is exposed to HPV, it should be thought of as every person's problem. This suggests that HPV-related AIN calls for different types of

problem definitions and policy solutions to address the disease. The issue of anal cancer is typically defined as a problem of HIV-positive individuals. This paper will consider advantages and disadvantages of redefining the issue as a problem of sexually active people by using Kingdon's (1995) Multiple Streams Theory to examine possible policy solutions for increasing anal cancer screening.

Background

Human papillomavirus-related AIN disproportionately affects individuals with immunosuppression, abnormal cervical Pap screening, high number of sexual partners, MSM, cigarette smokers, and those infected with HIV/AIDS (Da Costa *et al.* 2002, Palefsky & Holly 2003). The increasing incidence of HPV-related AIN is partially due to more people having multiple sexual partners and more people having anal intercourse (both among heterosexuals and gay men). Interestingly, anal intercourse is not an absolute requirement to acquire anal HPV infection (Hessol *et al.* 2010). HIV-positive incidences of AIN are 10–50 times greater in MSM when compared with the general population (Hessol *et al.* 2010). The widespread availability of antiretroviral therapy beginning in 1996 dramatically decreased mortality of HIV-positive individuals (Pokomandy *et al.* 2011). Despite overall improved survival, HIV-positive individuals remain at an increased risk for anal cancer because of prolonged HIV-induced immune suppression (Simard *et al.* 2011).

Compared with HPV-related cervical disease, HPV-related AIN is poorly understood, largely because attention has been focused on anal cancer only recently (Da Costa *et al.* 2002, Palefsky & Holly 2003). Therefore, the treatment of AIN has borrowed heavily from the treatment of HPV-related cervical disease. The most important techniques borrowed from cervical treatment are anal cytology and HRA. Anal cytology is the initial test to screen for the presence of abnormal cells in the anal canal. This test is analogous to the Pap screen and used as a primary screening for individuals at risk for HPV-related AIN. The similarities in disease aetiology and the ability to screen the population for disease give hope that the anal cytology will do the same for anal cancer as cervical Pap test did for cervical cancer. Over the past 20 years, the ability to visualize HPV-related anal disease has improved dramatically with the implementation of HRA (Darragh *et al.* 2008). The HRA has been adapted from the colposcope used to examine the cervix. HRA is a minimally invasive technique, which uses a colposcope to visualize the anal canal through an anoscope. The pathogenic changes, which HPV causes in the anal canal, are impossible to identify without the use of HRA. The combination of the anal cytology and HRA has increased the diagnosis and treatment options for individuals with AIN.

Human papilloma virus-related AIN is not free from the burden of stigma. HPV's classification of an STI and its association with sexual practices that fall outside the social norm, contribute to the stigma. Furthermore, the location of the body combined with the notion that this is an MSM disease, makes the topic challenging to talk about for practitioner and individual alike (Altman 2008). The social stigma that anal cancer carries with it prevents fair and unbiased conversations, awareness, and policy development that could offer early diagnosis and treatment options (Cantwell 2006).

Human papilloma viral disease is a problem of epidemic magnitude with major implications for public health safety. Currently, policymakers have not acknowledged the problem because it has not gained a high enough priority to make it onto the policymaking agenda and has not been addressed as a problem by policymakers. The U.S. Preventative Services Task Force (USPSTF) establishes national guidelines and recommendations for primary care and prevention for clinical preventive services. The USPST offers no guidelines for AIN. The use of HRA by a trained clinician is a critical prognostic tool for AIN. Currently, HRA receives very limited to no reimbursement coverage by insurance companies. This is in part due to the way insurance companies define HRA, which, according to Anthem Blue Cross, is ‘investigational and not medically necessary as a screening test for anal dysplasia and cancer of the anus’ (Medical Policy Update 2010). On 14 February 2011, new Medicare guidelines took effect whereby the use of HRA was ‘determined not to be medically reasonable and necessary at this time based on the current available published evidence’ (Schochet 2011). As a result, HRA is not covered by Medicare. Medicare does, however, cover routine cervical pap screening, anal cytology, colposcopy, and therapeutic management of AIN (Medicare 2011). This represents disconnects in understanding factors, which contribute to the magnitude of the problem. Although current policymakers may not view this as a problem, the evidence of raising incidence and prevalence rates of HPV-related AIN support a growing need for changes in policy to address the problem.

This paper will use John Kingdon’s (1995) Multiple Streams Theory of Agenda Setting to demonstrate that until the nature of the problem is correctly defined and recognized and visible leadership emerges on a political level, the problem will fail to gain adequate attention of the policymakers who are instrumental in providing a multifaceted solution. At this point, there are no noted examples of policymaker attention to HPV-related AIN or anal cancer.

Summary of Multiple Stream Theory—The Multiple Streams Theory provides a useful framework for examining how healthcare topics might get on the policy agenda (Walt *et al.* 2008, Breton & de Leeuw 2010). This theory can assist in framing why HPV-related AIN has not been uniformly addressed at the national level. The theory is especially useful in helping to isolate key constructs necessary to put the problem on and move it higher on the national agenda, which is paramount in facilitating a solution. According to Kingdon (1995), the Multiple Streams Theory is a framework for organizing social issues based on theory, which can produce changes in relevant policy or creation of new policies. The Multiple Streams Theory addresses why and how some issues come to be defined as problems while others do not, and why some proposed solutions receive more attention and become agenda items and others do not. The theory identifies the people and groups that influence government agendas and the process by which they do so. Agenda setting is defined as a framework of organizing social issues based on theory, which can produce changes in relevant policy or creation of new policies (Kingdon 1995). Moving an idea onto or higher up on that agenda involves three process streams: problems, policies, and politics.

The problem stream—The problem stream refers to the process of persuading policy decision makers to pay attention to one problem over another (Kingdon 1995). When a

problem is perceived as serious, it increases the policy proposal's chance of rising on the agenda. The higher a policy proposal is on the agenda, the more likely it is to influence changes in policy (Walt *et al.* 2008, Breton & de Leeuw 2010). It is in this stream that government officials become aware of the problem through indicators, focusing events, and feedback. Indicators provide empirical data on problems. They quantify the problem in a way that it can be discussed and understood by people of competing interest groups. A focusing event, like a natural disaster, can draw attention to the problem. The effects of a focusing event can be temporary or permanent (Walt *et al.* 2008).

Conditions—A condition becomes a problem if it violates people's social norms, values, and points of view (Kingdon 1995). Once a condition is identified, understanding how it affects people assists in quantifying the condition as a problem. Likewise, conditions can become problems when compared with circumstances elsewhere.

The policy stream—The policy stream represents the process by which policy problems are generated in proposals. This is also where alternative solutions to a policy are generated. The alternative solutions lead to the debating, revision, and adoption of the proposal for serious consideration on the policy agenda. This policy 'primeval soup' is a way of softening up the system (Kingdon 1995).

Competing proposals can be attached to the same problem, getting a proposal on the 'short list' typically takes time and the willingness to pursue it by using many tactics (Breton & de Leeuw 2010). Kingdon presents the idea of the 'policy entrepreneur' to accomplish this. Policy entrepreneurs typically are identified in the problem stream. These are people or groups with a passion, strong commitment, and attachment to the problem. The policy entrepreneurs broker people and ideas and thus might be more important than the inventor behind a given proposal or the proposal itself (Kingdon 1995). The policy entrepreneurs use the policy proposal to act as the billboard to draw attention to and gain traction for support of the problems in the political stream. Policy entrepreneurs are more likely to gain traction in the political stream if they can show that their proposals are necessary. Proposals are more likely to be successful if they are seen as technically feasible, compatible with decision maker values, reasonable in cost, and appealing to the public (Kingdon 1995). At this point, there are no true policy entrepreneurs for HPV-related anal cancer.

Clusters of participants—Visible participants are clusters of people who receive considerable press and public attention such as the president, media, and prominent members of Congress (Kingdon 1995). Hidden participants are people who drive policy from behind the scenes like academics, scientists, and congressional staffers (Kingdon 1995). According to Kingdon (1995), visible clusters affect the agenda and hidden clusters affect the alternatives. Alternative policies develop as a result of narrowing board policy options and the specialized interest of hidden clusters.

The political stream—Three events that occur in the political stream have a powerful effect on the agenda (Breton & de Leeuw 2010). Political officials are among the top agenda setters (Kingdon 1995). In this stream, participants observe swings in national mood, elections, new administration, and new partisan distribution to Congress. Accordingly, the

interest groups of various backgrounds press or fail to press their demands on government (Kingdon 1995).

A fundamental concept to understanding and applying Kingdon's Multiple Streams Theory is the concept that the three streams are all equal and they operate separately one another (Walt *et al.* 2008, Breton & de Leeuw 2010). Each stream is governed by its own rules and processes, which affect the movement of the events on the agenda. The events in the streams are influenced by indicators, national mood, and congruence with the values of the community members. Consequently, they do not necessarily follow one another in a logical or sequential order. In this adaption, the imagery of a stream to describe Kingdon's theory is quite apropos.

Policy window—The three streams each have lives of their own. However there comes a time when the three streams join. This is referred to as a 'policy window' (Kingdon 1995). For a brief time, an open window allows a problem on the agenda its moment to shine. This critical time is when the policy change is most likely to happen. The open window can be overwhelmed and flooded with additional and competing problems. The open window happens quite infrequently (Breton & de Leeuw 2010). Therefore, if a pressing problem demands attention with an open policy window, coupling the policy proposal to the problem is the solution (Kingdon 1995). This increases the likelihood that the problem will be higher on the national agenda. The higher the problem is on the agenda, the more likely it is to be addressed.

Data sources

Pubmed was searched for journal articles relevant to the topic from 1995–2012. Search terms included policy, anal intraepithelial neoplasia, AIN, HPV, HIV, high resolution anoscopy, HRA, cervical cancer, and nursing.

Discussion

Policy options

Advantage to HRA reimbursement—A policy option that mandates federal reimbursement for HRA is the most effective way to provide diagnosis and treatment of AIN in the population. It is imperative to start with Medicare because most private health insurance companies base their rules of coverage on Medicare guidelines. As a result of Medicare not reimbursing for HRA, private insurance companies are identifying HRA as non-covered. However, cost-effectiveness analyses for HRA using conservative assumptions indicate that screening and treatment of AIN to prevent progression to anal cancer fall within the range of economic acceptability (Lam *et al.* 2011). Advocates note that HRA is as effective in detecting AIN as cervical colposcopy is at detecting cervical disease (Wendling 2008). A study by Gimenez *et al.* (2011) demonstrated that HRA showed sensitivity of 90%, specificity of 19.23%, and positive predictive value of 41.67%, in detecting AIN.

Disadvantage to HRA reimbursement—The role of HRA is controversial in part because a clear link between AIN and development to anal cancer has long been assumed,

but never demonstrated in prospective trials (Wendling 2008). Insurance companies cite a lack of evidence-based practice and cost effectiveness to justify covering the procedure (Medical Policy Update 2010, Aetna 2011). Other factors may be that clinicians are unfamiliar or uncomfortable with the disease, programmatic considerations, and the lack of clear guidelines for screening and treating various manifestations of AIN.

Advantage to national AIN screening guidelines—The development of national anal cancer screening guidelines would strengthen the case for Medicare to reimburse HRA. The rationale for screening anal cancer is based on the success of cervical screening in reducing cervical cancer incidence and mortality. Because of the similarities between cervical and AIN, many experts postulate that the paradigms of managing cervical abnormalities may be translated into the management of AIN (U.S. Department of Health & Human Services Health Resources & Services Administration HIV/AIDS Bureau 2011). The advantages of national anal cancer screening guidelines are multifaceted. National screening guidelines serve as a public resource for evidence-based clinical practice. National screening guidelines would provide clinicians with primary care algorithms to manage the care and treatment of AIN. Additionally, national guidelines would ensure quality of care and standardizations of clinical practices. The competent development and execution of national screening guidelines will enable public health officials to monitor the incidence and prevalence of HPV infection and evaluate the effectiveness of routine screening and the prevention of disease. This surveillance data will help measure AIN interventions at the local level that will ideally inform policy development at the national level.

Disadvantage to national AIN screening guidelines—An obstacle to developing national screening guidelines is contingent on two driving forces: lack of systematic review of evidence-based practice from which to establish the guidelines and disagreement among organizations regarding how to screen and treat AIN. Primary disadvantages of creating national guidelines are that treatment for AIN often fails and that there are no data suggesting that AIN treatment prevents anal cancer (Centers for Disease Control & Prevention 2002). The establishment of national screening guidelines, which rely on a limited range of evidence-based treatments, may disadvantage or harm patients through insufficient recommendation. Currently, national expert groups, including the Centers for Disease Control and Prevention, USPSTF, American Cancer Society and the American Society for Colposcopy and Cervical Pathology, do not provide national screening or treatment guidelines for AIN or the use HRA. Although recommendations exist for anal cancer screening, the paucity of clinicians with expertise in HRA has limited the introduction of screening guidelines for at-risk patient populations.

The evidence for benefit of screening is unknown, but screening is advocated by some experts. The Center for Disease Control and Prevention (2009) acknowledges the potential benefits of anal cytology screening and HRA, but states that ‘studies of screening and treatment programs for high grade AIN should be implemented before definitive recommendations for anal cytology screening or HRA can be made’. A lack of national guidelines means that organizations are left to make their own ‘best guess’ recommendations. For example, guidelines produced jointly between the British HIV

Association, the British Association for Sexual Health and HIV and the Faculty of Family Planning and Reproductive Healthcare (2007) state ‘the role of annual anal cytology and HRA is not yet proven; however, patients should be encouraged to check and report any lumps noticed in the anal canal’ (Fakoya *et al.* 2007).

In contrast, the New York State Department of Health AIDS Institute (2007) suggests ‘screening for cellular dysplasia is prudent and recommended, particularly in persons at high risk for infection with papillomavirus’. As patients, insurance companies, and government regulatory agencies require evidence regarding healthcare quality, the demand for process of care measures also increases, which will only highlight the necessity of national screening guidelines (Rubin *et al.* 2001). When evidence linking clinical practice and outcomes is absent, it directly truncates creation of a national anal cancer screening guidelines as a policy option.

Applying Multiple Streams Theory to HPV-related AIN

The Multiple Streams Theory, through the problem stream, policy stream, and politics stream, provides the framework to examine HPV-related AIN as a policy issue. In the problem stream, lack of screening for AIN has not yet been identified as a policy-level problem. Additionally, all future solutions are currently limited by the lack of problem definition.

Problem definition

The basic classification of HPV is that of a sexually transmitted infection. However, only certain types of HPV cause cancer. Specifically, HPV-16 and HPV-18 are responsible for 90% of cervical and anal malignancies (Darragh *et al.* 2008, Palefsky 2008). The confusion on the types of HPV and what they do contributes to the problem definition and begs the question: can HPV be thought of as safe and cancer causing at the same time? The transmission of HPV and the body parts it infects also add to the problem definition. The transmission of HPV is not just limited to vaginal or anal intercourse: heavy petting and use of toys will also spread infection. Common STI prevention like condom use is not 100% effective against HPV because HPV contact transmission (Greenblatt and Palefsky 2009). Kingdon (1995) would argue that transmission and prevention are types of conditions. These conditions might violate important values and are therefore transformed into problems. Conditions that come to be defined as problems have a better chance of rising on the policy agenda (Kingdon 1995).

Problem recognition is critical to agenda setting. HPV-related AIN has not been recognized as a problem worthy of policymakers’ attention. The HIV epidemic that began in the USA in the 1980s was an ominous focusing event for HPV-related AIN. Prior to this, there was relatively little interest in AIN and anal cancer because of its rarity in the general population. HPV-related AIN experienced another focusing event with the death of actress Farrah Fawcett. Her death renewed interest in the disease. Fawcett died of anal cancer in 2009. One of the difficulties in recognizing HPV-related AIN as a problem is changing the perception from an affliction of MSM, to all people who are sexually active. Fawcett’s unfortunate death from anal cancer put a new face on the disease. Fawcett embodied the image of the ‘all

American girl', attractive, fit, and healthy; she was not associated with marginalized individuals engaging in socially undesirable activities. Major television networks and newspapers such as NY Daily News, ABC, and CNN covered her death, which was possibly one of the first events to draw large-scale attention to anal cancer. Removing the stigma from anal cancer would be instrumental in helping to solidify a problem definition. However, HPV-related disease is entrenched in a complicated physiological world of biology and science. It is difficult to tease out one simple problem or one simple definition from which to drive agenda setting policy.

Competition

Human papilloma virus-related AIN is competing with a bleak national mood as a result of high unemployment rates, home foreclosures, and disillusionment in the current government's ability to lead the nation. AIN is also competing with other more well-known cancers with high-profile policy entrepreneurs, like Lance Armstrong and testicular cancer. Another potential competitor for HPV-related AIN is the commodification of the body, in particular the cervix. According to Sharp (2000), the commodification of the body may be fragmented both metaphorically and literally through language and visual imaging to create the perception of monetary worth. As a society, we embrace commodification of the cervix. The cervix is worth investing monetary value in because it symbolizes life and womanhood. Commodification of the cervix drives policymakers to support funding of therapeutic drug development and reimbursement of Pap screening. Embracing the cervix allows people to connect HPV-related cervical disease to harm and cancer. The benefit of deconstructing the cervix as a part of the body allows for ambiguity. This ambiguity enables people to accept it into their social norms and values and help identify cervical cancer as a problem worthy of policymakers' attention. The anus has yet to reach this level. As a society, we are far from endorsing the commodification of the 'amazing anus'.

Feasibility

The current research has shown HRA to be both cost effective and technically feasible. These are key points in the policy stream. In a study by Lam *et al.* (2011), the direct use of HRA was shown to be a cost-effective strategy. It detected 98 individuals with high-grade AIN and had a cost effectiveness of \$809 per high-grade AIN case detected. This study provides empirical evidence to suggest that the cost of screening for AIN is a financially viable option.

Clusters

There are many hidden clusters interested in HPV. Biomedical scientists in laboratories and practitioners in clinical setting around the world are addressing HPV at the molecular, therapeutic, and patient care levels representing a truly interdisciplinary group of hidden clusters. However, AIN lacks positive visible participants. Currently, the media has saturated the public with negative visible participants, mainly Republican presidential candidate Michele Bachman (Grady 2011). Bachman's comments regarding the HPV vaccine, Gardasil, made national news. Bachman is quoted as telling parents not to vaccinate their daughters with Gardasil because it causes mental retardation. Whether one agrees or disagrees with her comments, the negative press she brought on HPV vaccination could have

a trickle-down effect on agenda setting for HPV-related AIN. Although Kingdon does not specifically address negative visible participants in his Multiple Streams Theory, one could argue that there is a place for them. Negative visible participants, like Bachman, do little to help move AIN up on the policymaking agenda.

Primeval soup

Kingdon presents the idea that the three streams are independent of one another and problems are recognized and defined according to their own incentives and selection criteria (Kingdon 1995). Currently, the issues of AIN screening and national HIV guidelines are in the primeval soup. For example, the recent change in New York's HIV clinical guidelines stipulating that to receive state or federal HIV funding, health centres must perform routine anal cytology in high-risk individuals may be causing the soup to stir at the state level. Many health centres, such as the Anal Neoplasia Clinic at the University of California, San Francisco Medical Center, are already providing the service, in lieu of national anal cancer screening guidelines and Medicare reimbursement. This could have unforeseen effects towards getting AIN on the agenda. Health care in the U.S. is driven at the state level. Feedback on local and regional interventions to address AIN could gain policymakers' attention and get HRA reimbursement on the agenda. This has been seen in the case of tobacco control legislation and many other policy areas. On the other hand, it could lead politicians to assume that the problem has been defined, taken care of, and allow them to move onto the next item.

Coupling and policy window

The political stream has yet to really address HPV-related AIN. In part, they could be taking their lead from the recommendations from such entities as Medicare and the U.S. Department of Health and Human Services Health Resources and Services Administration HIV/AIDS Bureau. However, politicians have been willing to discuss HIV/AIDS and address related policy problems on the agenda. This is an excellent opportunity to couple Medicare reimbursement of HRA, as a policy issue with HIV/AIDS. AIN is a pressing problem that demands attention, because it disproportionately affects populations with HIV/AIDS. Policy proposal coupled to the problem of AIN could be the complete linkage, which combines all three streams, problems, policies, and politics, into a single package. Additionally in 2010, the White House released the National HIV/AIDS Strategy (NHAS) (White House 2010). This ambitious plan is the nation's first-ever comprehensive coordinated HIV/AIDS road-map with clear and measurable targets to be achieved by 2015. This could be the open policy window AIN has been waiting for. When the measures of NHAS are evaluated in 2015, the administration may open a problem window, a policy window, and a political window. According to Kingdon (1995), open windows present opportunities to move a problem up onto the agenda. The joining of the separate streams depends heavily on the appearance of the right policy entrepreneur at the right time. The lack of a true policy entrepreneur for HPV-related AIN could prevent anal cancer from coupling with HIV/AIDS and making it to an open window. Another point to consider is whether coupling HPV-related AIN to NHAS could have unintended negative consequences. For example, HPV-related AIN coupling could be incomplete and the rise of NHAS on the agenda ephemeral. Should this happen in an election year and a new administration elected

into office with policy interests more pressing than NHAS, the fate of HPV-related AIN would be sealed.

Implications for Nursing

Nurses are on the front lines of providing patient care and have firsthand experience negotiating the effects of healthcare laws and regulations in providing quality care. This gives the nursing community a unique perspective on how healthcare policy needs to be implemented to best serve patients. Advance practice nurses (APN) have the ability to be trained to perform the HRA. Acquisition of this skill set allows APNs to provide a full spectrum of care to a diverse population at risk for the development of anal cancer. Likewise, APN see firsthand how lack of reimbursement and insurance coverage for HRA has a negative impact on patient outcomes. A trait that separates nursing from other professions is at our core, nurses are patient advocates. The reimbursement by federal and private insurance companies is necessary so APNs and other clinicians can provide preventative modalities to those individuals at risk for developing anal cancer. Nursing has a voice that can have high impact on establishing HRA on the policy maker's agenda. This voice needs to be heard in the support of developing a national policy to address the increasing incidence of anal cancer.

Conclusion

Human papilloma virus-related AIN demands attention and the development of national level policies to ensure public health and safety. Kingdon's Multiple Streams Theory has provided a pragmatic framework to evaluate the problem. At this point, AIN is not well defined in the problem stream. However, incidence and prevalence rates indicate that this is a problem of potentially endemic proportions. AIN does seem to have traction at the state policy level, but this is sporadic at best. However, even the small attention AIN is receiving at the state level may improve its ability to get on a national agenda. The lack of a true policy entrepreneur has prevented AIN from breaking into the political stream. However, there may be an opportunity to couple HPV-related AIN with HIV/AIDS and take advantage of the NHAS. Feedback from the NHAS may be enough to move AIN onto the policy stream and gain the attention of the politicians. Politicians need to be convinced that addressing problem solutions for AIN are cost-effective, feasible, and publicly acceptable and will help maintain public health and safety.

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References

- Aetna (2011) Clinical Policy Bulletin Colorectal Cancer Screening. Retrieved from http://www.aetna.com/cpb/medical/data/500_599/0516.html on 25 November 2011.
- Altman L (2008) Sex diseases in many gay men go unfound, experts say. The New York Times. Retrieved from <http://www.nytimes.com/2008/03/13/health/13std.html> on 24 November 2011.
- American Cancer Society (2011) Anal Cancer. Retrieved from <http://www.cancer.org/Cancer/AnalCancer/DetailedGuide/anal-cancer-detection> on 24 November 2011.
- Breton E & de Leeuw E (2010) Multiple streams theory in Sweden: an error III. Health Promotion International 25(1), 134–135. [PubMed: 20167828]
- British Association for Sexual Health and HIV (2007) Clinical Guidelines. Retrieved from <http://www.bashh.org/guidelines> on 25 November 2011.
- British HIV Association (2007) Standards for HIV Clinical Care. Retrieved from <http://www.bhiva.org/standards-of-care-2007.aspx> on 25 November 2011.
- Buck CB, Thompson CD, Roberts JN, Muller M, Lowry DR & Schiller JT (2006) Carrageenan is a potent inhibitor of papillomavirus infection. PLOS Pathogens 2(7), 671–678.
- Cantwell A (2006) Homophobic homosexuals: making AIDS ‘a gay disease’. New AIDS Disinformation Program Spread By The Los Angeles Gay and Lesbian Center. Retrieved from <http://www.rense.com/general73/homphn.htm> on 24 November 2011.
- Center for Disease Control and Prevention (2009) Guidelines for prevention and treatment of opportunistic infections in HIV-infected adults and adolescents: recommendations from CDC, the National Institutes of Health and the HIV Medicine Association of the Infectious Diseases Society of America. MMWR Recomm Rep 58, 1–207.
- Center for Disease Control and Prevention (2011) HPV-Associated Cancers Statistics. Retrieved from <http://www.cdc.gov/cancer/hpv/statistics/> on 24 November 2011.
- Centers for Disease Control and Prevention (2002) Guidelines for preventing opportunistic infections among HIV-infected persons —2002. Recommendations of the U.S. Public Health Service and the Infectious Diseases Society of America. MMWR Recommended Report 51(RR-8), 1–52.
- Da Costa MM, Hogeboom CJ, Holly EA & Palefsky J (2002) Increased risk of high-grade anal dysplasia associated with a Human Papillomavirus type 16 E6 sequence variant. The Journal of Infectious Diseases 185, 1229–1237. [PubMed: 12001039]
- Darragh T, Berry JM, Jay N & Palefsky J (2008) Modern Colposcopy Textbook and Atlas, 3rd edn. Lippincott, Williams, & Wilkins, Philadelphia, PA.
- Faculty of Family Planning & Reproductive Healthcare (2007) Contraceptive Choices for Young People and HPV Screening. Retrieved from <http://www.fsrh.org/pdfs/ceuGuidanceYoungPeople2010.pdf> on 25 November 2011.
- Fakoya A, Lamba H, Mackie N, Nandwani R, Brown A, Bernard EJ, Gilling-Smith C, Lacey C, Sherr L, Claydon P, Wallage S & Gazzard B (2007) British HIV Association; British association for sexual health and HIV; faculty of family planning and reproductive healthcare: 2007 UK guidelines for the management of sexual and reproductive health (SRH) of people living with HIV infection. Retrieved from <http://www.bashh.org/documents/91/91.pdf> on 21 February 2012.
- Gimenez F, de Costa-e-Silva IT, Daumas A, de Araujo J, Medeiros SG & Ferreira L (2011) The value of high-resolution anoscopy in the diagnosis of anal cancer precursor lesions in HIV-positive patients. ARQ Gastroenterology 48(2), 136–145.
- Grady D (2011) Remark on HPV vaccine could ripple for years. Retrieved from <http://www.nytimes.com/2011/09/20/health/20hpv.html?pagewanted=all> on 2 November 2011.
- Greenblatt RM & Palefsky J (2009) Anal intraepithelial dysplasia in a multi-site study of HIV-infected and high-risk HIV-uninfected women. AIDS 23(1), 59–70. [PubMed: 19050387]
- Hessol NA, Holly EA, Efird JT, Minkoff H, Schowalyer K, Darragh TM, Burk RD, Strickler HD, Zhang Y, Tsai Y, Monie A, Hung C & Wu TC (2010) Carrageenan as an adjuvant to enhance peptide-based vaccine potency. Vaccine 28, 5212–5219. [PubMed: 20541583]
- Kingdon JW (1995) Wrapping things up. In Agendas, Alternatives and Public Policies, 2nd edn (Kingdon JW, ed.), Addison Wesley Longman, New York, pp. 196–208.

- Lam JMC, Hoch SS, Tinmouth J, Sano M, Raboud J & Salit IE (2011) Cost effectiveness of screening for anal precancers in HIV-positive men. *AIDS* 25, 635–642. [PubMed: 21139488]
- Medical Policy Update(2010) . Anthem Blue Cross. Retrieved from www.anthem.com/ca/provider/f3/s1/t4/pw_a112996.pdf on 24 November 2011.
- Medicare (2011) Cervical and Vaginal Cancer Screenings (Pap Tests and Pelvic Exams). Retrieved from <http://www.medicare.gov/%28X%281%29S%28zjcsu1yrvvi3hgreatw0345%29%29/navigation/manage-your-health/preventive-services/cervical-cancer-screening.aspx> on 10 February 2012.
- National Institutes of Health (1996) Cervical cancer. NIH Consensus Statement 14(1), 1–38. [PubMed: 9407932]
- New York State Department of Health AIDS Institute (2007) Neoplastic complications of HIV disease. Retrieved from www.hivguidelines.org on 24 November 2011.
- Palefsky J (2008) Screening and treatment of anal intraepithelial neoplasia to prevent anal cancer: Where do we stand? The PRN Notebook. Retrieved from http://www.prn.org/index.php/coinfections/article/hpv_associated_anal_intraepithelial_dysplasia_81 on 25 November 2011.
- Palefsky J & Holly EA (2003) Chapter 6: Immunosuppression and Co-infection with HIV. *Journal of the National Cancer Institute Monographs* 31, 41–46.
- Palefsky J, Holly EA, Ralston ML & Jay N (1998) Prevalence and risk factors for Human Papillomavirus infection of the anal canal in Human Immunodeficiency Virus (HIV)-positive and HIV-negative homosexual men. *The Journal of Infectious Diseases* 177, 361–367. [PubMed: 9466522]
- Pokomandy A, Rouleau D, Trottier H, Vezina S, Cote P, Macleod J, Allaire G, Hadjeres R, Franco EL & Coutlee F (2011) HAART and progression to high-grade anal intraepithelial dysplasia in men who have sex with men and are infected with HIV. *Clinical Infectious Disease* 52(9), 1174–1181.
- Rubin HR, Pronorost P & Diette G (2001) The advantages and disadvantages of process-based measures of health quality. *The Journal for Quality in Healthcare* 13(6), 469–474.
- Schochet E (2011) Medicare Denies Coverage for Lifesaving Procedure to Detect Anal Cancer. Retrieved from <http://www.southfloridagaynews.com/sfgn-columnists/guest-columnists/3667-medicare-denies-coverage-for-lifesaving-procedure-to-detect-anal-cancer.html> on 18 February 2012.
- Sharp L (2000) The commodification of the body and its parts. *Annual Review of Anthropology* 29, 287–328.
- Simard EP, Pfeiffer RM & Engles EA (2011) Cumulative incidence of cancer among individuals with acquired immunodeficiency syndrome in the United States. *Cancer* 84, 1089–1096.
- U.S. Department of Health and Human Services Health Resources and Services Administration HIV/AIDS Bureau (2011) Guide for HIV/AIDS Clinical Care, Anal dysplasia. Retrieved from <https://hab.hrsa.gov/deliverhivaidscares/clinicalguide11/cg-00-00.html> on 26 November 2011.
- Walt G, Shiffman J, Schneider H, Murray SF, Brugha R & Gilson L (2008) ‘Doing’ health policy analysis: methodological and conceptual reflections and challenges. *Health Policy and Planning* 23(5), 308–317. [PubMed: 18701552]
- Wendling P (2008) Routine anal pap smear testing gains ground. *Internal Medicine News*. Retrieved from http://findarticles.com/p/articles/mi_hb4365/is_3_41/ai_n29432855/ on 25 November 2011.
- White House (2010) National HIV/AIDS Strategy for the United States. Retrieved from <http://www.whitehouse.gov/administration/eop/onap/nhas> on 21 February 2012.

What is already known about this topic

- Human papillomavirus is the most common sexually transmitted infection worldwide.
- Anal intraepithelial neoplasia is caused by the oncogenic genotypes of Human papillomavirus, mainly HPV-16 and HPV-18, and is thought to be the precursor to anal cancer.
- In the past 30 years, incidence rates of anal cancer have jumped by 78% in women and 180% in men.

What this paper adds

- Human papillomavirus-related anal intraepithelial neoplasia calls for different types of problem definitions and policy solutions to address the disease.
- Considers advantages and disadvantages of redefining the issue as a problem of sexually active people by using Kingdon's Multiple Streams Theory to examine possible policy solutions for increasing anal cancer screening.
- Until the nature of the problem is correctly defined and recognized and visible leadership emerges on a political level, the problem will fail to gain adequate attention of the policymakers.

Implications for practice and/or policy

- Developing policy that mandates public insurance to cover the high-resolution anoscopy procedure will increase access to care and improve patient outcomes.
- There may be an opportunity to couple Human papillomavirus-related anal intraepithelial neoplasia with HIV/AIDS and take advantage of the National HIV/AIDS Strategy.