

The façade of inevitability: Risk, agency, and the American Academy of Pediatrics' technical report on male circumcision

by

Chris Jones

A thesis submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Major: Rhetoric, Composition, and Professional Communication

Program of Study Committee

Gregory Wilson, Major Professor

Abby Dubisar

Margaret LaWare

Iowa State University

Ames, Iowa

2013

Copyright © Chris Jones, 2013. All Rights Reserved

TABLE OF CONTENTS

| | |
|--|----|
| ACKNOWLEDGEMENTS | iv |
| ABSTRACT | v |
| CHAPTER 1: INTRODUCTION | 1 |
| The Problem | 2 |
| Infant male circumcision | 5 |
| The medicalization of (IMC) | 6 |
| Male circumcision and HIV | 9 |
| CHAPTER 2: CLUSTER ANALYSIS | 14 |
| Introduction | 14 |
| Epistemic rhetoric and science as rhetoric | 15 |
| Cluster analysis | 17 |
| Conclusion | 27 |
| CHAPTER 3: THEORY | 28 |
| Kairos | 29 |
| Agency | 30 |
| The intersection of kairos and agency | 33 |
| Agency, kairos and risk | 34 |
| Conclusion | 37 |

| | |
|--|----|
| CHAPTER 4: LATOUR’S MODEL | 38 |
| Where we are now | 44 |
| Concluding thoughts and moving forward | 45 |
| CHAPTER 5: CONCLUSION | 46 |
| Areas for further research | 47 |
| Concluding comments | 47 |
| WORKS CITED | 49 |

ACKNOWLEDGEMENTS

The process of earning a graduate degree is not something that is accomplished alone. While my journey has had me spend many nights tucked away in some obscure corner of the universe writing, reading, and thinking, I owe a successful completion of this process to a number of people. Without their help I would not be here.

I first must thank my wife Ashlee for her patience with me during the last couple of years. It wasn't always easy or fair for her and I recognize that partners of graduate students often make great sacrifices. I want to thank her for her (sometimes unsolicited) advice and encouragement in times of great struggle and great success.

To my major profess, Greg Wilson, whose sound advice and encouragement always left me feeling like I was exactly where I needed to be.

I want to extend gratitude to my committee members Abby Dubisar and Margaret LaWare for their help and feedback during this process.

I want to also extend special thanks to a handful of people who helped me get to this point in too many ways to count. To Jamii Claiborne for her unreserved faith in my abilities. To Inez Schaechterle and Kathy Kapitan for an unplanned trip that changed my future goals. To Anna Formichella for her continued support, guidance, and humor.

Thanks to the many friends and family members who at one time or another had to listen to me talk out loud about writing problems whether they wanted to or not.

And finally, all of my appreciation and gratitude goes to my grandfather, Roger Looker, who unknowingly continues to shape who I am and who I will become.

ABSTRACT

This thesis will examine the American Academy of Pediatrics' 2012 technical report on male circumcision and how it crafts an argument that infant male circumcision should be preferred over not circumcising. Drawing on theories of agency, this research will suggest that the ability for parents to choose is limited through the way in which the report constructs risk for its readers. In particular, this thesis will explore what role the AAP's report plays in the larger conversation about infant male circumcision. This thesis adds to a conversation about the ways in which medical texts can shape cultural practices, and the implications of the AAP's report.

CHAPTER 1: INTRODUCTION

“Behind the cold epistemological question – can our representations capture with some certainty stable features of the world out there? – the second, more burning anxiety is always lurking: can we find a way to fend off the people... Will we still be able to use objective reality to shut the mob’s too many mouths?” – Latour 13

In September of 2012, the American Academy of Pediatrics (AAP) released a revised policy statement on their stance about infant male circumcision (IMC). They cite new research about the impact of male circumcision on the rate of HIV transmission as a primary factor in their recommendation that because the medical benefits of IMC outweigh the risks, it should be an option for families. This revised policy statement was accompanied by a technical report on male circumcision in which they detail their review of evidence to support their claim. This technical report will be the primary artifact for this thesis.

The goals of my research come from one very complex question: how does science work? Always a cynic, I have had, for a long time, a lingering distrust of the scientific community. But this distrust of science has led to a desire to understand in what ways science makes us believe in it, and possibly more importantly what happens if you choose not to believe. As Latour recognizes, there seems to be a need for a system that can calm the “unruly mob.” Indeed, public interpretation of science is a major concern of the burgeoning field often called Rhetoric of Science.

Studying science through a rhetorical lens can, however, offer much more insight than simply how to make scientific arguments more efficacious. If we accept that rhetoric is epistemic – that it creates knowledge – than we will see that science, when viewed as a form of rhetoric, is much more in the business of creating knowledge than discovering *a priori* facts. Because science does not exist apart from political, economic, and social worlds, the way in which it constructs “facts” will be influenced by a number of external factors. I believe it is the duty of rhetorical criticism to help discover what these influences are, how they manifest themselves in scientific texts, and what implications such a thing might have on the public at large (and on the scientific community as well). But discovering how science works is the endeavor of entire fields of study and is a question far too lofty for this thesis. My attempts will be far more modest. In particular, I am looking at medicine and public health research as a form of science.

The Problem

The scientific issue I will focus on in this thesis is infant male circumcision (IMC) in the United States. A series of clinical trials conducted in sub-Saharan Africa (Kenya and South Africa) between 2003 and 2006 indicate that circumcision of males may prevent the transmission of HIV by as much as 60%. While the research was conducted on adult males in a region where an estimated 68% of the 34 million people living with HIV reside and where the infection rate among adults is a staggering 5% (AVERT), the American Academy of Pediatrics (AAP) has relied heavily on this research to justify their support of infant male circumcision (IMC) in the United States where less than 4% of the world’s HIV cases occur and where only an estimated .4% of the population are infected with HIV (CDC). The AAP indicates that recent research shows that the medical benefits of IMC outweigh the risks and that this justifies “access to this procedure for families who choose it” (756). What remains unclear is how this HIV research is

used and applied to a vastly different context as a form of argument. The report focuses heavily on the ability of the family to make choices for their infant, but constructs a narrative of risk – primarily the risk of contracting HIV that makes the decision not to circumcise medically negligent. The report also displays an unresolved tension between the right of the family to make such a decision and the right of the child to make that decision once they reach the age of consent.

My goal in this research is not to suggest that circumcision is right or wrong, only to examine how the technical report functions as a rhetorical artifact. What is particularly interesting about this document is that on a surface level it seems to merely suggest that parents have an opportunity to choose whether or not to have their children undergo the procedure, but a closer analysis reveals that the report is really arguing that circumcision is a better option. Because the primary audience of the report is the medical community (physicians, pediatricians, nurses, etc.), it is important to note that the technical report on male circumcision is available for free on the AAP's website and was published both online and in the September 2012 issue of their journal. Given the immediacy and intensity of news coverage the policy statement received, it is reasonable to assume that a number of people viewing the report were parents or expecting parents. For this reason, the report is treated as having a pluralistic audience.

A quick scan of articles touting the medical benefits of IMC or blasting the credibility of these claims will reveal a host of prevalent issues, and a review of commentary on such articles indicates just how intense this debate can be. The discourse that envelops the IMC issue has existed in the public sphere for a number of years, but more than ever medical research is being viewed by a public that may or may not be equipped to interpret it. In addition, this particular scientific discussion concerns both religious and cultural practice. Still, medical organizations

like the AAP have a vested interest in presenting recommendations based on their evaluation of current research. The AAP is an organization “dedicated to the health of all children” (AAP History). Founded in the 1930’s by a cohort of medical professionals, the goal of the organization was to foster relationships within the medical community and between the medical community and other organizations. Their current mission is to “attain optimal physical, mental, and social health and well-being for all infants, children, adolescents and young adults” (AAP Facts). From a practical standpoint, the AAP helps to establish standards for preventative care of children such as immunization and diet.

While the percentage of circumcised infant males in the United States has been declining in recent years (Rabin), there remains a need to regularize and medicalize the procedure due to the inconsistencies with how, when, and where the procedure is performed. From a number of viewpoints – human rights, religious rights, cultural ideology, socioeconomic, medical, etc. – infant male circumcision occupies a complex discursive web.

In this paper I argue that the AAP maintains that the choice to circumcise should be left to the family of the infant, but they also inhibit this choice by both positioning the physician as the primary decision maker and by constructing a rhetoric of risk in regards to HIV infection. What looks like only a recommendation that circumcision should be an option for parents is really a suggestion that circumcision is a vastly better decision. In general, the AAP and their report (among other things) act to regulate the practice of circumcision and in doing so position those who choose not to circumcise as dissenters. By stating that it is better, from a medical standpoint, to have infant males circumcised, the AAP divides families into those who make good choices and those who do not. In chapter two I use cluster criticism to explore the discursive patterns of the technical report, and use recent theories about agency and kairos is

chapter three to see how risk is constructed. In chapter four I use Latour's model of the circulatory system of scientific facts to help to illuminate aspects of the AAPs 2012 technical report and how the report functions at a more macro level. I conclude that for a true choice to exist, we as a culture must understand and confront the social constraints that make not being circumcised unnatural.

Infant male circumcision

Male circumcision (MC) is defined by the AAP as “the surgical removal of some, or all, of the foreskin (or prepuce) from the penis” (756) where foreskin refers to the fold of skin that covers the glans of the penis. In the United States the vast majority of circumcision procedures are performed during the neonatal stage – usually within the first few weeks of life. According to the AAP, the procedure is most commonly performed using one of three different clamping devices: Gomco clamp, Plastibell device, and Mogen clamp (757). Within the last couple of decades, the need for pain medication during the procedure was thought of as an added danger, but the AAP notes that anesthesia and analgesia are being increasingly used during the procedure (and they recommend the continued use of these pain reduction techniques). The way this procedure is performed varies greatly depending on who is performing the procedure and where the procedure is being performed. While the majority of procedures are performed in a hospital setting by a trained surgeon, a certain number of circumcisions are performed by religious figures outside of a hospital setting.

Comprehensive surveys of the prevalence of infant male circumcision in the United States indicate that the rate is 42% to 80% among a number of populations and regions (AAP 758). The prevalence is lower in western states where it is estimated to be as low as 25% (Berger). This prevalence indicates the rate of newly performed circumcisions, and while it is

much harder to measure the overall prevalence of circumcised males, conservative estimates indicate that an overwhelming majority of adult men in the United States are circumcised. This figure is prominently determined by the fact that circumcision rates from before 1979 were high and remained around 65% from 1979 to 1999 (CDC). Circumcision rates vary greatly from country to country and region to region, but the World Health Organization estimates that about 1/3 of the world's adult males are circumcised. Countries like Spain and Denmark have very low rates of around 2% while countries like South Korea and the Philippines have rates above 90% (Circinfo). It is important to note that in many countries, circumcision is not performed during the neonatal stage and is often delayed until the child is a teenager.

The AAP cites that the most common complication from IMC is excess bleeding and infection. They also maintain that the risk for complications increases for procedures that aren't performed during the neonatal stage. While the incidence of complications is unknown, the AAP cites two large hospital studies that put the risk of complication between .19% and .22% (772), although they admit that these risks are likely to greatly increase if the procedure is not performed in a clinical setting using sterile tools and appropriate medical technique. They also state that the occurrence of death (and other serious complications) are so rare that they excluded them from their report. However, the deaths related to circumcision in the United States are estimated to be at over 100 per year (Bollinger).

The medicalization of (I)MC

To understand how male circumcision came to be associated with HIV prevention and to understand how an organization like the AAP comes to play a vital role in the way we think about infant male circumcision, we must first take a brief look at the history of MC and how it came to be understood as a medical practice. In short, the medicalization of MC is an important

history because it helps us see how interconnected social, economic, and scientific motivations are. Because this paper deals primarily with IMC, the history that follows treats male circumcision as separate from female circumcision. I recognize, however, that attempts to standardize both female and male circumcision as medical practices have been made. Leonard Glick (2005) and Robert Darby (2003, 2005) historicize male circumcision and trace its development from a religious/tribal ritual to a standardized, routine medical practice.

Until the mid-19th century, (I)MC was primarily practiced as a religious rite in the Jewish and Muslim faiths. In general, the procedure was not considered a surgical one and was most often ceremonially performed by a religious figure. As Glick points out, in the bible God commands Abraham to circumcise himself and his sons as a sign of their covenant (14). While this may not be considered the first male circumcision performed as a religious rite, Abraham's covenant with God is the most cited occurrence of religious male circumcision. Glick also recognizes that whether or not we accept the story of Abraham as a "divine intervention, it is human composition, created during specific historical times" (14). (I)MC is still a "human composition" —the need is constructed by humans— and that it is, in essence, a rhetorical performance. The medical need for (I)MC is buttressed by a series of human produced, scientific "facts".

Robert Darby, in *The Masturbation Taboo and the Rise of Routine Male Circumcision: A Review of the Historiography*, asserts that while it still remains unclear exactly why IMC became a routine medical practice by the end of the 19th century, it cannot be ignored that part of the motivation was to discourage masturbation and that, perhaps, what were initially purely moral or religious motivations shifted into medical motivations to gain traction. Indeed, MC was said to cure any number of illnesses including epilepsy, penile cancer, and aggression. "The

demonization of the foreskin as a source of moral and physical decay was the critical factor in the emergence of circumcision and its acceptance as a valid medical intervention” (Darby 4). This demonization was a factor in the many attempts, including those by John Kellogg, to mandate IMC.

In his 2005 book *A Surgical Temptation* Darby traces the development and subsequent fall of routine IMC in Great Britain while drawing parallels to other countries, most notably the United States, Australia, and New Zealand. He concludes his book with a thoughtful and provocative sentiment.

If this analysis is correct, it may readily be seen that the rise of circumcision depended first on a serious regression in medical knowledge, including loss of understanding about the normal development of the penis and the pathologization of the normal male sexual function... It is also apparent that routine circumcision owed something to both the old and the new medicine, particularly acquiring its undeserved status as a preventative health measure from the latter. In a broader sense, the concept of circumcision as a medical therapy, along with the idea of masturbation as a disease agent, may be regarded as a product of the epidemiological confusion that marked the long dissolution, yet persistence, of both Galenic/humoral and nerve force theory, and of the consequent hope that surgery, both fantasy and otherwise, was the field in which new victories in the battle against disease would be won. The long careers of spermatorrhea, masturbatory illness, and circumcision itself show just how easy it is for modern medicine to retain irrational elements from its variegated past (318-319).

As the above quote illustrates, the tenants of modern IMC are grounded in cultural/religious happenings, masturbation taboo, and the ambiguity of medical knowledge. As a modern issue,

IMC is still primarily a debate about public health and sexuality; however, today the concern has much more to do with the transmission of HIV and sexual issues related to the spread of this disease than to concerns about masturbation.

Male circumcision and HIV

Human Immunodeficiency Virus, or HIV, belongs to a subgroup of retroviruses known as lentiviruses. This type of virus spreads slowly throughout the host's body and is capable of "evolving out of danger from almost any antiviral agent that an infected person [can] either ingest or inject" (Engel 63); it is both elusive and resistant to treatment. HIV is widely accepted as the virus that causes AIDS and is most commonly transmitted through sexual and blood to blood contact. While research continues to be conducted to sort out the history of HIV and AIDS and how it spread to epidemic numbers on the African continent, factors that lead to the spread of the disease are tied up in culture and politics. Victorian Harden synthesizes the history of thought about HIV and the AIDS virus,

"In the industrialized world, where much of the initial transmission of AIDS was via homosexual sex, conservative political leaders shied away from addressing what they viewed as a distinctly unpleasant, if not abhorrent, subject. In much of the developing world, initial transmission of AIDS was via heterosexual sex. Political leaders in those countries also avoided addressing AIDS, even in the face of data from blood tests showing rising HIV infection... HIV arrived and has continued to spread in human populations (95-96).

HIV is unique not just in how it spreads on a microbiological level, but also because it is spread through activities that are desirable, if not altogether necessary, to humans. It makes us feel

vulnerable much more so than other diseases because of its stigma as an incurable disease that is difficult and expensive to treat, and as a disease that is deadly if left untreated.

The Center for Disease Control (CDC) estimates that in 2009 there were 1.2 million people living with HIV in the United States, with about 18% of those undiagnosed, and about 50,000 people contract the disease in the United States each year. The World Health Organization (WHO) estimates that 34 million people are living with HIV worldwide, with the majority of these incidences occurring on the African continent. There is no comprehensive treatment plan for HIV, but WHO has suggested that circumcision ought to be part of a prevention strategy.

More recently, attempts to medicalize IMC have come by way of suggesting that the presence or absence of an intact foreskin influences the probability of HIV transmission. The first documentation of how the foreskin might facilitate HIV transmission come from Dr. Valerie Alcena and Dr. Aaron Fink. In 1986, both wrote letters to respected medical journals – the New York State Journal of Medicine and the New England Journal of Medicine respectively – postulating on how an uncircumcised man might come to be more at risk for contracting HIV. Alcena indicated that given the prevalence of the disease in Central Africa and Haiti, the warm climate of those areas leads to an irritation called balanitis which creates a breakage of the skin, allowing for easy transmission of HIV. Fink argued that the overall softness of the foreskin tissue allowed for easier transmission. Both theories, although presenting only anecdotal evidence, started a conversation in the United States about the role of circumcision in HIV prevention, which, in 1989, prompted, in part, the AAP's policy that IMC has potential medical benefits.

Attempts to legitimize the theory that the foreskin increases the risk of HIV and thus that male circumcision be introduced as a prevention method most notably occur in a 2005 randomized clinical trial (RCT) conducted in parts of sub-Saharan Africa. Known as the Orange Farm RCT, the study involved 3,274 uncircumcised men. The participants were randomly put into an intervention group who were circumcised, and a control group who were left intact. They had follow-up visits at 3, 12, and 21 months. The study was shut down by the Data and Safety Monitoring Board after the 21 month visits because the study indicated that the occurrence of HIV in the intervention group (those who were circumcised) was as much as 60% less than those in the control (uncircumcised) group. It was therefore deemed unethical to not let those men in the control group receive the procedure if they chose. The staggering results of this study served to solidify MC as a necessary medical intervention in the prevention of HIV in this part of Africa. It can also be seen how the foreskin's association with the transmission of the disease helped to solidify the medicalization of MC. Yet, as the researchers indicate, one of the major limitations of the study was that it "was conducted in one area in sub-Saharan Africa and, therefore, may not be generalizable to other places (Auvert, et al, 2007, 1120). It remains unclear, then, how exactly this particular study influenced the AAP and their position on IMC and, furthermore, how the medicalization of MC in Africa seemingly meant the medicalization of IMC in the United States.

The AAP cites clinical trials like the Orange Farm OTC to help support their position, but they only speak briefly to the "biological plausibility" of the foreskins role in transmission. There is little comprehensive research about the exact role that the foreskin plays, but the CDC writes that

Compared with the dry external skin surface of the glans penis and penile shaft, the inner mucosa of the foreskin has less keratinization (deposition of fibrous protein) and a higher density of target cells for HIV infection. Some laboratory studies have shown the foreskin is more susceptible to HIV infection than other penile tissue, although others have failed to show any difference in the ability of HIV to penetrate inner compared with outer foreskin surface. The foreskin may also have greater susceptibility to traumatic epithelial disruptions (tears) during intercourse, providing a portal of entry for pathogens, including HIV. In addition, the microenvironment in the preputial sac between the unretracted foreskin and the glans penis may be conducive to viral survival. Finally, the presence of other sexually transmitted diseases (STDs), which independently may be more common in uncircumcised men, increase the risk for HIV acquisition (CDC Male Circumcision).

Because it is still unclear how the foreskin may increase the rate of HIV transmission, the AAP relies more on clinical evidence to support their position. This clinical evidence demonstrates that the foreskin may play a role in HIV transmission but it does not explain how this process happens at a biological level.

The medicalization of IMC is not without controversy. Movements to encourage IMC have been met with much resistance by social activists aptly called “intactivists,” referencing the intact foreskin. The concern is, in part, over the rights of the infant being circumcised, but more importantly, there is large concern over the validity of the research such as that from the Orange Farm RCT. Intactivists argue that suggesting IMC as a method for preventing the transmission of HIV is both dangerous and misleading. One such group, The Bay Area Intactivists, suggest that “A common error made by those who want to justify infant male circumcision on the basis of

medical benefits is that they believe that as long as some such benefits are present, circumcision can be justified as therapeutic, in the sense of preventive health care” (2), and that it shouldn’t be assumed that circumcision is the only reasonable way to attain these benefits (2). Their major concern is that because there are other ways to prevent the transmission of HIV, it shouldn’t be assumed that circumcision can replace these other measures.

The debate over the medical need for IMC is shifting significantly to a conversation about HIV and HIV prevention. The AAP’s technical report treats this information in great detail. The remaining chapters in this thesis will present a cluster analysis of the technical report on male circumcision, an account of how risk is constructed in the report, and a discussion of how Latour’s model of science can increase our understanding of the issue.

CHAPTER 2: CLUSTER ANALYSIS

Introduction

Before the American Academy of Pediatrics's (AAP) 2012 policy statement, they had maintained that while there might be health benefits related to infant male circumcision, there was not sufficient research to suggest it as a necessary procedure (AAP 1999 Policy Statement 686). In 2007, due to mounting evidence about the effects of male circumcision on the transmission rates of HIV, the AAP formed a committee to reevaluate evidence about the medical benefits and risks of infant male circumcision (IMC) in the United States. The committee, called the Task Force on Male Circumcision, was a multidisciplinary workgroup consisting of members of the AAP and various other stakeholders with specialties in anesthesia, bioethics, and newborn medicine among others. The taskforce's research was published in the September, 2012 issue of the AAP's journal and concluded that the prevalence of new research leads them to suggest that IMC has more medical benefits than risks.

The 2012 report begins with an abstract that briefly states the conclusions that the taskforce has come to. This abstract also serves as their policy statement. After providing a short history of the problem and why the taskforce was formed, the report makes a series of recommendations for moving forward. Although the report lays out recommendations, it is not organized using these recommendations but is organized topically. The recommendations are put into categories such as: parental decision making, care of the penis, disease and morbidity, complications, and workforce development.

The 2012 policy statement on IMC is certainly very different from their previous policy statements both in content and organization and was met with much debate in public forums across popular and social media. Although the AAP doesn't explicitly recommend routine IMC, it seems that their position has been overwhelmingly interpreted to do just that. The report is interesting from a rhetorical standpoint because while the explicit recommendation isn't a "hard-and-fast" recommendation, yet when closely examined it appears to support routine IMC.

Several ways of thinking informed my research on the AAP's report of IMC. I want to highlight some of these key theories/methodologies as my research is heavily grounded in viewing rhetoric and medical science in a particular way. Starting with a discussion about rhetoric as epistemic, this chapter will move to a cluster analysis of the AAP's 2012 technical report.

Epistemic rhetoric and science as rhetoric

Viewing rhetoric as epistemic and viewing science as rhetoric opens doors for what rhetorical criticism can do. Understanding that scientific work involves creating rather than discovering knowledge means allows for rhetorical criticism to explore how this knowledge is created through discourse. In 1967 Robert Scott wrote an important work in the field of rhetoric entitled *On Viewing Rhetoric as Epistemic* in which he considers the role rhetoric plays in *knowing*. In short, Scott was getting at the question of how rhetoric begets knowing. He writes that the value of rhetoric is in its epistemic nature or its ability to create truth. "If some men can possess truth, and others understand truth, then what need the former do but present truth to the latter" (On Viewing Rhetoric 11)? Scott asks an important question, for if rhetoric is not seen as epistemic then it has a very limited, if not altogether unnecessary, role. Scott argues that reality is socially constructed and that it is "in understanding how human action is *decisive* that rhetoric

makes its contribution to knowing” (Ten Years Later 261), and it is through this contribution that we can understand that rhetoric is in the business of “creating rather than finding meaning in the world” (262).

In a 2010 blog post, Brian McNely and Christa Teston echo Scott’s sentiment that rhetoric cannot merely be the art of persuasion, but that it is

“worldview; it is underlying philosophy and tacit understanding. . . . We argue that rhetoric ought not be treated as a conduit, a dumb pipe connecting human knowledge to an *a priori* Reality or Truth. Rhetoric does not *discover*; it *invents*, and *produces*.”

This sentiment by McNely and Teston is particularly important when talking about science because science is often seen as an act of discovering rather than an act of production by the public at large.

The first step to understanding the relationship between science and rhetoric is to accept that their aims are not entirely antithetical. Rhetoric, much like science, is largely concerned with how the world works; what sets of variables produce what outcomes. What I propose is that science and rhetoric are not interdependent. While science helps determine the material conditions in which rhetoric operates, rhetoric too contributes to the ontology of science and scientific research.

Opponents to “the rhetoric of science” such as Dilip Gaonkar suggest that the problem isn’t that scientific texts aren’t rhetorical or can’t be analyzed using rhetorical methods, it’s that adopting science (in addition to other disciplines) as a subfield of rhetoric leads to a globalization of rhetoric, or to what McNely and Teston call the “atomization of rhetoric.” Globalization is a legitimate concern for how the development of such subfields impact the field of rhetoric.

McNely and Teston write that “Rhetoric as a discipline suffers from failing to join the productive tensions of atomization with a kind of theoretical baseline or shared understanding among contingencies that all discourse is at once particular and holistic, situated and situating, epistemic ontologically.” They call for a broader understanding of how we think of rhetoric in relationship to the “things” rhetoric studies; they suggest that we drop the “of” in our descriptions of our studies. The goal, then, of a rhetoric of science, or of science as rhetoric should be to explore how science manifests itself, to get at what the *motives* are, and to explore how science functions as rhetoric – to see *how* it creates knowledge and meaning in the world and to see what conditions (both material and semiotic) allow for such a creation of knowledge. I think it is also particularly important to look at the effects of such rhetoric. Because science is foregrounded by the understanding that it finds *a priori* facts, the implications of scientific texts are often understood as natural. It should be of interest to any one studying how science is rhetoric to explore what impact such texts have. In short, if rhetoric creates knowledge and science is rhetoric, then how scientific knowledge manifests itself in cultural practice is an important consideration. While there are a number of ways to approach answers to these questions, this research uses cluster analysis.

Cluster analysis

As a way to get at how the AAP’s technical report on male circumcision functions as a rhetorical artifact, I followed Kenneth Burke’s method often called cluster analysis or cluster-agon analysis. This method helps uncover the conscious or unconscious *motives* at play. Burke briefly explains this type of analysis in “Philosophy of Literary Form”:

Now, the work of every writer contains a set of implicit equations. He uses “associational clusters.” And you may, by examining his work, find “what goes with what” in these

clusters –what kinds of acts and images and personalities and situations go with his notions of heroism, villainy, consolation, despair, etc. And though he be perfectly conscious of the act of writing, conscious of selecting a certain kind of imagery to reinforce a certain kind of mood, etc., he cannot possibly be conscious of the interrelationships among all these equations. Afterwards, by inspecting his work “statistically,” we or he may disclose by objective citation the structure of motivation operating here. There is no need to “supply” motives. The interrelationships themselves *are* his motives. For they are his *situation*; and *situation* is but another word for *motives*. The motivation out of which he writes is synonymous with the structural way in which he puts events and values together when he writes; and however consciously he may go about such work, there is a kind of generalization about these interrelations that he could not have been conscious of, since the generalization could be made by the kind of inspection that is possible only *after the completion* of the work (20).

Here, Burke is highlighting the point that motives are tied up in situation. They are synonymous. And by examining clusters of words or exploring “what goes with what,” we may begin to understand the interrelationships and motives at work in the artifact. It is important to note that while Burke seems primarily concerned with literature, these same concepts have been adopted by rhetorical critics.

It is also necessary to explain, to some extent, what exactly Burke means when he says *motives*. The term dominates much of scholarship and so it seems pertinent to establish a definition. William Benoit notes that at several places in Burke’s scholarship he indicates that motives are words, statements, or language (71). While we may interpret motives as what causes or motivates action, it is much more useful to think of a motive as “distinctively linguistic

products” (Permanence and Change 35). Or as Jasinski writes “Motives exist in the vocabularies that we use for grasping situations and formulating responses to situations. Motives, in short, appear to be cultural principles embodied in vocabularies that shape and guide human perception and action” (370). In this way, while motives might be products of language, we must see language as cultural phenomena. Thinking of motives this way gives validation to the cluster analysis method. By looking at language, at linguistic patterns, we can attempt to understand motives or the relationship between culture and action.

Sonja Foss writes that rhetoric “represents a creative strategy for dealing with (a) situation or for solving problems inherent in it” (64). She offers up three steps for conducting a cluster analysis: Identifying key terms, charting the clusters, and discovering an explanation for the artifact (66-67). In “identifying key terms,” I based the significance of a term both on what Foss calls the frequency and intensity of the word (66). Frequency refers to the number of times a word appears in a text while intensity is more qualitative. While Foss does not offer up a useful definition of intensity, what it seems to refer to are words that carry a lot of emotion with them. In many ways the intensity of the word is what can be argued. It is the responsibility of the critic to indicate why a particular word might be more intense than another. For example, because the 2012 report is about circumcision, this word occurs quite frequently. However, the intensity of the word does not necessarily warrant an analysis of it, such as the term HIV might. HIV carries intensity because as a culture we understand it in a particular way. It is a frightening term because of the nature of the virus. My research did not require heavy mapping or coding, as I was working with one relatively short document. My strategy was to engage in close textual analysis a number of times, each time focusing specifically on a different term and the clusters around that term.

A cluster analysis of the AAPs 2012 technical report on male circumcision reveals a number of interesting themes that can help to explore how it is working as a distinct kind of argument. The primary themes are that of parent(s), choice, and risk. In what follows, I will discuss what examining these clusters can reveal about the technical report and how it functions not to just suggest that circumcision should be an option for parents, but to convince parents that IMC is both a viable prevention method for HIV and should be preferred over choosing not to circumcise.

Parent(s)

“Parent(s)” often occurs in the document surrounded by terms like “assistance,” “counsel,” “decision,” “choice,” “understand,” “best interest,” “physician,” and “ethical.” These clusters help to reveal that the report classifies parents not as primary decision makers, but rather as people who need “counseling” or “assistance” by medical professionals in order to come to an appropriate decision. The report states that this counseling should be “objective” or “unbiased,” implying that parents’ decision making should not come from any kind of emotion but rather through an understanding of facts as presented by a medical professional. By citing research that indicates that “parental decisions about circumcision are shaped more by family and sociocultural influences than by discussion with medical clinicians or by parental education” (762), and by maintaining that physicians should “assist parents by explaining... the potential benefits and risks” of IMC (757), the AAP privileges a situation in which medical advice is the preferred voice in the discussion. More than this, the language serves to suggest that parents are incapable of making an informed decision on their own. It is only with the advice, counsel, and assistance from a medical professional that they can make an informed decision.

Given the decline of IMC rates in the United States in the last several years and the emergence of research about a connection between the foreskin and transmission of HIV, the AAP is attempting to play a role in increasing IMC rates in the United States by suggesting that medical advice (which indicates that IMC has more benefits than risks) is superior to family and sociocultural influences (which may account for the declining rates). This becomes problematic when we consider another of the AAPs recommendations which states that “Parents should weigh the health benefits and risks in light of their own religious, cultural, and personal preferences, as the medical benefits alone may not outweigh these other considerations for individual families” (757). This statement conflicts with the AAPs rhetoric throughout the report, and works to stratify parents into two distinct camps: those who make good decisions and those who do not.

Choice

“Choice” is typically surrounded by terms like “parents,” “alternative,” “informed,” and “circumcision.” While the word “choice” does not appear often, it is an important term because of its intensity. The term can also be equated with the term “decision” in the report. Offering a choice, or the ability to make a decision, is powerful rhetoric. Parents reading the report, for instance, want to feel as though they have choice and that they are the one’s making the decision. What is of particular interest is that the infant males in question are not given a choice in the matter. The AAP addresses this issue by stating that “as a general rule, minors in the United States are not considered competent to provide legally binding consent regarding their health care, and parents or guardians are empowered to make health care decisions on their behalf” (759). One question that then remains is why a child cannot first reach the age of consent and

decide for himself whether or not he wants to be circumcised. This will be discussed later, but for now it is important to say that the infant males in question are not afforded a choice.

An important quote from the report reads: “Physicians counseling families about this elective male circumcision should assist parents by explaining, in a nonbiased manner, the potential benefits and risks, and by ensuring that they understand the elective nature of the procedure” (761). This quote or a variation of it appears no less than 5 times in the report. What is noteworthy about this kind of wording is that there is a focus on the elective nature of the procedure, or in other words, there is a focus on having a choice. But what becomes apparent when reading the report is that this choice is not an inherent one because parents have to be counseled into understanding this. The AAP is indicating that choice should be constructed by physicians talking with families. Of course what we do not know is how this actually plays out in the interactions between parents and their physicians. But what we can determine is that the AAP is very careful to maintain that there is a level of choice to be had.

A rhetoric of “choice” has been examined by a number of feminist theorists, but has primarily been in relationship to the issue of abortion in the United States. What is less examined are the choices offered up to parents in regards to how they should and should not care for their infants. Amy Koerber provides such a discussion in regards to breastfeeding. She notes that the ability to choose has a number of limits and

it is clear that such agency cannot be reduced to subject-centered, strategic use of language directed against ideological force in a two-way struggle, but rather must be understood as partial and as closely implicated with the same discursive structures that embody such force (87-88).

Koerber is equating agency with the ability to choose and shares the sentiment of Graham and Herndl and Licona that often this choice is both in resistance to and reliant upon authoritative structures and institutions. In her article, Koerber is treating the act of breastfeeding in public as a “disciplinary rhetoric,” as a way to persuade through making a choice. While there are certain similarities between issues of breastfeeding and issues of IMC, they have at least one major distinct rhetorical difference that makes the choice not to circumcise very different than making the choice to breastfeed. The difference lies in public perception about the health benefits of each. While breastfeeding is typically seen as just as healthy as or healthier than formula or bottle feeding, the AAP’s report attempts to treat circumcision as far better (medically) than leaving the foreskin intact. We may be able to understand the choice not to circumcise as what Koerber calls an “act of resistance” (88).

Risk

“Risk” is my primary term for analysis. The entirety of the report, even the other clusters discussed, rely on an understanding of risk. From the AAP’s initial recommendation that the medical benefits of IMC outweigh the *risks*, the construction of what risk is, what risk levels need to be assessed and what this explanation of risk means for patients and their families becomes important. While the word “risk” occurs 95 times in the 23 page document, the frequency of the term is far less important than its intensity, and in many cases, the term isn’t used explicitly but the idea of risk is invoked.

Schwartzman, Ross, and Berube write that because of the accelerated discoveries in science and technology, we must have a system for regulating such discoveries. They contend that this regulation occurs primarily through the notion of risk (1). They write that,

Rhetorical issues leap to the foreground most blatantly in science and technology when technical issues enter a public forum beyond the scope of scientific discourse. Since consideration of risk affects all stakeholders involved in an issue, discussions of risk automatically extend communication beyond the discursive domain dominated by scientific researchers, engineers, and other technicians.... Rhetorical analysis can contribute to knowledge about several factors that problematize the communication of risk (2).

The AAP's discussion of risk factors related to IMC and contracting HIV "extend communication beyond the discursive domain." What is problematic is that while the AAP is primarily writing for other medical professionals, their arguments are read by parents and families who might be interpreting the discussion of risk very differently than a medical professional. As Teston writes

If communicating risk, displaying evidence, and making decisions in life and death situations necessitate making rhetorically present certain material characteristics, then those rendering technological and rhetorical explanations are responsible for making the techniques deployed as transparent to nonexpert audiences as possible (Teston 208).

In short, the argument that circumcision may decrease the risk of contracting HIV by 60% is a powerful argument when taken at face value, and this information is presented in such a way that parents may leave with an exaggerated interpretation of the relative risk of their child contracting HIV if they are not circumcised. The information is not transparent. Schwartzman, Ross, and Berube also write,

“Especially when the measurable degree of risk is unknown or poorly understood, as in the case of emergent technological innovations, risk assessment becomes a relative judgment reliant on heuristics that establish the comparative threat levels. Such judgments invoke factors such as personal values including religiosity, comportment of innovations with pre-existing beliefs, past experiences, activation of emotions, and perceived proximity to the risk-inducing phenomena” (5)”

We see a construction of this proximity or moment at work in the AAP’s technical report on male circumcision. By citing the research being done in Africa, the AAP creates a “perceived proximity to the risk-inducing phenomena” when, in fact, there may be very little risk at all. If we take a look at some of the estimates in the United States, a different story about HIV risk and IMC becomes apparent.

According to the CDC, approximately 1,200,000 people in the United States (about .4% of the population) are living with HIV, with an estimated 50,000 new people infected each year. Nearly two thirds of new infections occur in men who have sex with men (MSM). Only 27% of new HIV cases are spread via heterosexual contact with about two thirds of these occurring in women. Research cited in the AAP’s report indicates that male circumcision does not impact transmission of HIV in MSM and has no protective impact for women, a very small percentage of people (men who have sex with an infected woman) are actually protected by any supposed effect of circumcision. Oddly, the AAP only mentions MSM and women as specific risk populations, yet continue to suggest that heterosexual men are a distinct risk group by the use of research conducted in regions where a vast majority of HIV cases are spread via heterosexual contact and, in general, by reporting that this medical benefit justifies the procedure. The actual risk of a male contracting HIV in the United States via heterosexual contact is small.

The AAP writes in their report that “more than 619,000 people in the United States have died of AIDS since the epidemic began” (764). While the risk of contracting HIV in the United States via heterosexual contact is extremely low, referring to the problem as epidemic and using research conducted in regions of the world where the risk of HIV being contracted via heterosexual contact is far greater and where the disease is certainly at epidemic rates, helps the AAP use risk as a rhetorical device which can be used to increase what Alex Preda calls the “illocutionary force” (12). He writes that risk is “a tool or device by which a text formulates claims about its epistemic intentions and assertions” (12). In other words, exploring how risk is constructed can help reveal the “motives” of the text.

The first recommendation (that IMC has more benefits than risks) sets a precedent for how the AAP wants us to think about “risk.” They create a risk/benefit binary in which risk takes on a negative connotation and benefit takes on a positive connotation. This may seem trivial, but this opposition situates risk to mean the likelihood that something negative will happen and benefit to mean the likelihood that something negative will not happen rather than something positive will happen. The only benefits, then, are simply reductions of risk. In this way, the word benefit is inextricably tied to the word risk.

Of the 10 overall recommendations that the AAP makes, 8 of them either speak explicitly of risk or imply risk. For instance, the AAPs 7th recommendation reads, “Analgesia is safe and effective in reducing the procedural pain associated with newborn circumcision; thus adequate analgesia should be provided whenever newborn circumcision is performed” (757). The word “safe” is used to imply that there is a low rate of risk involved in using certain pain reduction techniques. The 5th recommendation maintains that parents should be instructed on how to care for an infant male’s penis. Again, this suggestion doesn’t explicitly state anything about risk, but

it is implied that improper care of the penis increases certain risk factors and especially that the circumcised penis is, in general, easier to keep clean. In the discussion of this particular recommendation, for instance, the AAP writes that not washing the entire penis was 10 times more likely to occur in uncircumcised men than in circumcised men. Because the report cites that harmful bacteria tends to be more frequent under the prepuce (for uncircumcised men), they are articulating that the risk of being unclean and thus being susceptible to sexually transmitted infections and urinary tract infections increases in uncircumcised men.

Conclusion

This cluster analysis reveals that while the AAP does not explicitly recommend routine IMC, they are motivated by recent HIV research to lead readers into believing that IMC is a far superior choice than leaving male foreskins intact. The most important consideration that comes from this analysis is how risk is constructed in the report and how it acts at the primary persuasive method. While the risk of contracting HIV through heterosexual contact is relatively low in the United States, the AAP creates a proximity to this risk by using research conducting in an area of the world where the situation is very different. The report frames parents as incapable of interpreting this risk and therefore in need of assistance or counsel from medical professionals in order to make an informed decision.

CHAPTER 3: THEORY

Bruno Latour notes “Most philosophy of science... consists on taking on, evading, hedging, coming back to, recanting, solving, refuting, packing, unpacking this impossible antimony: that on the one hand facts are experimentally made up and never escape from their manmade settings, and on the other hand it is essential that facts are *not* made up and that something emerges that is *not* manmade” (125). Indeed this is a real tension in understanding science as rhetoric. Medical science often appears as inevitable and inherent. But how to diagnose and treat various ailments is not *a priori* knowledge that is simply discovered. How to diagnose and treat disease is a negotiation between various cultures, discourses, institutions, people, etc. In short, there is a fair amount of rhetorical work that goes into creating the façade of inevitability. This appearance of inevitability is not necessarily bad; it builds an often necessary trust in the medical community. But the desire to understand science as “not manmade” can have (possibly) unforeseen outcomes. Childbirth is a prime example of how the medicalization of a practice can foster debate. While most of us might see childbirth as a medical event, having a child in a hospital with the presence of a doctor or surgeon is a relatively new practice. This medical need has been constructed over time and has, in part, led to the abuse of medication and surgical procedures to aid in the birthing process. So too has circumcision been adopted by the medical community, and with much debate about the medical need for the procedure. Through their technical report, The American Academy of Pediatrics (AAP) attempts to occupy what Herndl and Licona call an *agentive function* to convince its readers that infant male circumcision is in the best interest of a male infant’s health as well as public health and should be a regularized practice. This chapter will use theories of the rhetorical concepts of *kairos* and *agency* to expound upon the cluster analysis that precedes this chapter. In particular this chapter

demonstrates that kairos and agency are the two most critical rhetorical tools that show up in the AAP's technical report and discusses how they work in the text to make it particularly persuasive.

Kairos

The ancient Greeks designated two words – chronos and kairos - that translate to English as “time.” Chronos is most closely associated with linear time or the order in which things happen. Things occur in time – they are *chronological*. Chronos as time is an important distinction from kairos which is generally thought of as the opportune time. Chronos and kairos are alike in that they both involve literal time, but kairos, unlike chronos, is fleeting; it is an opportunity. Carolyn Miller writes that kairos implies both a temporal and spacial element. “Each rhetorical situation presents a different sort of opportunity, a different kairos;” a different exigence (Miller 312). Miller’s work in *Kairos and the Rhetoric of Science* helps to show that “each moment on the continuum of scientific effort has its own quality, its own *kairos*” (324). Kairos, then, often overlaps with our understanding of context or rhetorical context. It is time, space, conditions, etc. We might think of chronos as time and kairos as timing. If someone is said to have good timing, it means that they are in the right place at the right time.

Another important characteristic of kairos is that it exists as a relationship between controlled and uncontrolled conditions. Eric Charles White writes:

“Kairos is an ancient Greek word that means ‘the right moment’ or ‘the opportune.’ The two meanings of the word apparently come from two different sources. In archery, it refers to an opening, or ‘opportunity’ or, more precisely, a long tunnel-like aperture through which the archer's arrow has to pass. Successful passage of a kairos requires, therefore, that the archer's arrow be fired not only accurately but with enough power for it

to penetrate. The second meaning of *kairos* traces to the art of weaving. There it is ‘the critical time’ when the weaver must draw the yarn through a gap that momentarily opens in the warp of the cloth being woven. Putting the two meanings together, one might understand *kairos* to refer to a passing instant when an opening appears which must be driven through with force if success is to be achieved” (13).

White is addressing the controlled and uncontrolled aspect of *kairos*. While a rhetor can work to create opportune moments and use the skills they have to shoot an arrow or weave, they are also subject to those fleeting openings like the loops of yarn that the shuttle must pass through. Understanding *kairos* as partly created by a rhetor and partly created by external factors (of which there are many) helps us see that rhetoric isn’t simply at the mercy of uncontrollable circumstances, but not altogether detached from them.

If a goal of rhetoric is to persuade an audience into action, then it seems that we must consider the audience and how they might act given a particular *kairos*. In other words, not only should we look at *kairos* as the timing of “speech,” but also how time is constructed to convince an audience to act within a given timeframe – how does a constructed sense of opportunity (*kairos*) work to persuade readers? In order to fully answer this question we must take a look at our second term, agency.

Agency

Put simply, agency refers to the ability to effect change. In this sense, it would seem that that an organization like the AAP would have far less agency than the parent making the decision of whether or not to circumcise their infant boy. But recent theories complicate the idea that agency is something that can be possessed at all. While there is a fair amount of scholarship on agency and rhetorical agency, I will discuss the handful of ideas that highlight a prevalent way of

understanding agency. In order to parse a working definition of agency, I will synthesize the work of a few different papers on agency written by prominent figures in the discussion: Carl Herndl and Adela Licona, and Carolyn Miller, Marilyn Cooper.

Herndl and Licona in “Shifting Agency: Agency, Kairos, and the Possibilities of Social Action” are primarily concerned with agency’s relationship to authority and temporality (kairos). They argue that “agency is the conjunction of a set of social and subjective relations that constitute the possibility of action” (135). They speak of agency as an ability to enter a discourse and effect change, noting that doing this requires specific social and material conditions. The relationship of agency and kairos becomes important because understanding kairos as the opportune moment for speech or action and agency as the ability to act highlights that the two are not just related but rely on each other.

Viewing agency as “contingent on a matrix of material and social conditions” (Herndl and Licona 138) and an agent as someone who “occupies the agentive intersection of the semiotic and the material through rhetorical performance,” (Herndl and Licona 141) we start to see that agency is more like a space that we might occupy. It is a “social location and opportunity out of which rhetors, even postmodern subjects, move” (Herndl and Licona 138). This intersection of the subject and temporal as contingent conditions that promote a possibility for action make up what Herndl and Licona call the *agent function*. Much like Foucault’s author function, the agent function relies on the idea that agency is a function of material and semiotic conditions.

Carolyn Miller echoes Herndl and Licona’s sentiment that agency is not merely a property of an agent, but rather a property of the event itself. She describes agency as kinetic

energy and puts agency as a property of the rhetorical event or performance rather than as a property of the rhetor. She writes that “agency thus could not exist prior to or as a result of the evanescent act.... As the kinetic energy of performance, agency resolves its doubleness, positioned exactly between the agent’s capacity and the effect on an audience” (147). Miller highlights the important role that the audience plays. While the effect on the audience can manifest in myriad ways, how agency is constructed in an artifact can be used to examine how an audience might act.

Marilyn Cooper, while acknowledging that a useful theory of agency must get rid of notions of the subject suggests that agency is

“embodied processes that take place largely without the agent’s awareness.... It provides the motivation for taking responsibility for one’s actions. Disposition, personality, is embodied, and, thus, to deny one’s actions is to deny one’s existence” (436).

In direct response to Miller, Cooper suggests that thinking of agency as kinetic energy leaves us without an ability to assign responsibility for actions (438). She writes that “rhetors – and audiences – are agents in their actions, and they are responsible for those actions, but they are not the sole cause of what happens” (439). Cooper brings up a valid point about the responsibilities of rhetors and audiences, but I wish to argue that her sentiment about Miller’s ideas is a misunderstanding of how to think about agency as energy.

Scott Graham offers another description of agency that pertains directly to medical artifacts. He provides a set of principles to help understand how agency might be understood in a medical context:

- 1) Agency is the process of instantiating change in the status quo.

- 2) Change arises from series of rhetorical events over time.
- 3) Although the overall agentive program resists authoritative forces, the constitutive rhetorical events frequently rely on those same authoritative forces.
- 4) A change becomes the status quo when the (new) authoritative structures operate to maintain the change (379-380).

Graham's principles help to account for how we might understand agency and how it functions in medical texts.

The intersection of kairos and agency

Graham's principles are useful, but another guiding idea must also be considered. I am suggesting that kairos and agency are inextricably tied to each other and that while agency is not something any one entity can possess, individuals, organizations, institutions, etc. occupy an agentive function in part through a recognition/manipulation of kairos. Herndl and Licona write that "the rhetorical performance that enacts agency is a form of kairos, that is, social subjects realizing the possibilities for action presented by the conjuncture of a network of social relations" (135). Using the relationship between kairos and agency described by Herndl and Licona, we might see the choice to circumcise or not is a rhetorical performance and the AAP as an authoritative structure. Looking at kairos and agency can illuminate what roles are played by various parties and what this means in regards to the choice of whether to circumcise or not. The AAP constructs a particular kairos in the technical report on male circumcision to convince readers that IMC is the best option.

Agency, kairos and risk

To further the discussion about agency and kairos it is important to look at how the construction of risk in the technical report works in relationship with them. While it might be too simplistic or hasty to suggest that the AAP is attempting to strip decision making from parents, it seems reasonable to conclude that the AAP is a distinct “mechanism of authority” (Graham 382) aimed at stabilizing and maintaining the dominate social order (Herndl and Licona 142-143). They are an authority in part because they have an established ethos of being a respected medical organization and act to maintain circumcision as a social norm. One way in which this plays out in the rhetoric of their report is through “risk.”

The report begins with a list of recommendations (which are also repeated in the conclusion) that the AAP is suggesting based upon their synopsis of many people’s research. The first recommendation reads, “Evaluation of current evidence indicates that the health benefits of newborn male circumcision outweigh the risks, and the benefits of newborn male circumcision justify access to this procedure for those families who choose it” (757).

This first statement is where construction of risk emerges. While the quote indicates that there are medical benefits to the procedure, nearly all of these benefits are a proposed reduction in the risk of contracting a disease, namely HIV. The report states “the most notable research contributions to the literature since 1995 are studies of male circumcision and the acquisition of HIV” (764), and “fourteen studies provide fair evidence that circumcision is protective against heterosexually acquired HIV infection in men” (764). It is important to note that because the research indicates no protection for men who have sex with men, the AAP works to establish a risk for primarily heterosexual males in the U.S. (where the risk of contraction and transmission through heterosexual contact is actually very minimal). By reporting that the risk of HIV

contraction is both real and that the foreskin's role in transmission is "biologically plausible" (764), the AAP attempts to establish itself as the authority in what we might call the agentive space by "constraining discourse and action and maintaining social practices" (Herndl and Licona 143). The report states

In the pluralistic society of the United States, where parents are afforded wide authority for determining what constitutes appropriate child-rearing and child welfare, it is legitimate for the parents to take into account their own cultural, religious, and ethnic traditions, in addition to medical factors, when making this choice (759).

But there is tension with this idea later when they state that "medical benefits and risks need to be presented accurately and in a nonbiased fashion so families can make a decision in light of their own cultural, religious, and personal preferences" (763). This is a slight difference in language, but there is ambiguity in what would otherwise be a similar idea. The AAP seems to be recognizing that families want to feel like their personal beliefs are being respected while still maintaining that the medical facts and especially the medical facts that deal with HIV should dominate the discourse and the decision making process.

While this thesis has worked to show how the risk of contracting HIV is used to recommend IMC, I have not yet discussed in what ways the report makes clear that the infant period is when circumcision should happen. Kairos becomes an important concept because it can help illuminate how this is playing out in the AAP's technical report. The primary way in which the report constructs this sense of "timing" is again through risk:

Newborn males who are not circumcised at birth are much less likely to elect circumcision in adolescence or early adulthood. Parents who are considering deferring

circumcision should be explicitly informed that circumcision performed later in life has increased risks and costs... those who are already sexually active by the time they have the procedure lose some opportunities for the protective benefit against sexually transmitted infection (STI) acquisition, including HIV (760).

This type of language makes implicit that, while it may be a parent's preference to let the child decide later in life, it is not a medically responsible decision. The AAP cites that the newborn period (usually the first two weeks of life) is the most opportune time to have the procedure done. They are, in essence, constructing a *kairos*. As argued above, while *kairos* can be seen as a condition of a text we might also understand it as a condition within a text. IMC in the United States and the conditions that led to the AAP's report have their own *kairos*. They came into conversation because of the intersection of a number of conditions, but the AAP also constructs a *kairos* in their report by articulating a specific kind of risk. They indicate that circumcision needs to happen during the newborn stage because this is when there is the least amount of risk involved and when the most potential benefits can be attained (760). Letting children reach the age of consent, while reported as an ethical concern, is constructed as more "risky," and therefore not the opportune time to have the procedure done.

An interesting connection between agency and *kairos* starts to emerge when the choice to circumcise is seen as a display of agency that "serve[s] to further entrench a dominant social order" (Herndl and Licona 135) and the choice not to circumcise, then, is a form of resistance to authority in a similar way that Koerber discusses breast feeding and breast feeding in public as a form of resistance. What is clear, however, is that it is becoming increasingly difficult to resist the dominant order. The insistence on the risk of contracting HIV functions rhetorically to persuade readers to have their male infants circumcised. The risk narrative constructs the

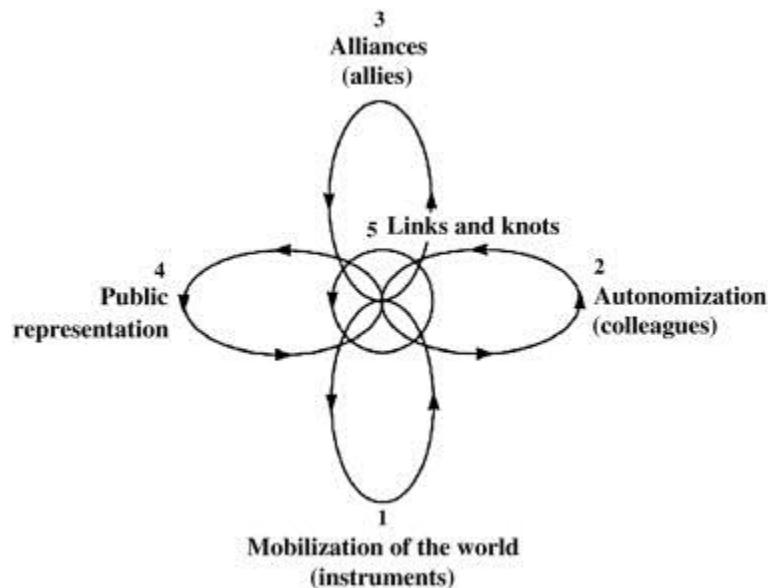
situation —the semiotic and social circumstances—that help determine the appropriate way to act or the appropriate way to perform agency.

Conclusion

This discussion helps to demonstrate that agency, as it relates to medicine, is intricate and complex. Simply saying that a medical decision like circumcision is, in the end, up to the parents ignores the intricate web of semiotic and social factors that account for the ability to act. The AAP, therefore, is implicated in this web. They act as an authority, whose goal is to reify the foreskin's role in contracting HIV and therefore articulate a particular status quo. They construct a particular kairos to help establish that the infant period is when the circumcision procedure should happen.

CHAPTER 4: LATOUR'S MODEL

Latour's Circulatory System of Scientific Facts (figure 1) is an attempt to visualize how science happens. Like the arteries that connect our veins and control our blood flow, so too does science rely on a network of "arteries" and "veins" to exist. This model acknowledges both the work of individual scientists and research teams, and the reliance on what we might call institutional science. The same model may be a useful tool for understanding how the controversy over IMC in the United States is navigated by the AAP on a more macro level. In a



controversy, such as the current one over infant male circumcision (IMC), "operations of conviction mobilize a mixture of human and nonhuman agents" (Latour 98-99). Both human actors and nonhumans (such as certain technologies) help to move the discussion forward.

Latour's model, a sort of vascular system of science, is complex and deserves explanation. While the proceeding discussion will treat the loops individually and, for the sake of writing about it, more linear than it is intended, note that engagement in these loops often happens simultaneously.

The first loop of Latour's model—Mobilization of the World—deals with how "nonhumans are progressively loaded into discourse" (Latour 99), or how different technologies are used in a certain discourse. It concerns how scientists might make objects (equipment, instruments, research sites) more mobile, enabling them to more effectively use their data. This

includes how data is shared across a number of stakeholders and how regularized practices are maintained. To study the mobilization of the world is to study “the logistics that are so indispensable to the logics of science” (Latour, 1999, p.102), and to study these logistics seems to come with an understanding that data and thus scientific “facts” are always the consequence of scientific work and not the result of nature. “Instead of moving around the objects, scientists make the objects move around them” (Latour, 1999, p.101). Latour’s first loop is about how nature or the world is made into science by work and technology.

The studies in sub-Saharan Africa are important considerations of this loop. The studies use particular methodologies and sets of tools to establish particular, scientific assessments of risk. Orange Farm is the most notable site where the relationship between HIV and circumcision was “proven.” This site is important in the mobilization of the world, because of its epidemic rates of HIV and high density of uncircumcised males. Research on the effects of circumcision on HIV transmission rates would be much more difficult to accomplish in the United States, so this research is co-opted to accomplish goals in the United States. It is mobilized.

While mobilization of the world is concerned with enrolling nonhuman agents (technologies, research sites, etc.), the second loop, which Latour calls autonomization, may be said to involve the enrolling of human agents. It “concerns the way in which a discipline, a profession, a clique, or an ‘invisible college’ become independent and forms its own criteria of evaluation and relevance” (Latour 102). This is primarily done through a collection of data. The more data that can be collected, the stronger a position will be. We can start to see how this loop works to strengthen the first loop as well. “The drive to establish credibility of information is one of the most powerful accelerators of the circulatory system. It is frequently the primary trigger for information-sharing practices” (Tabak and Wilson 113).

In the sciences, much like in academia, this autonomization occurs primarily via the peer review process, as peer review provides credibility to research and the arguments of research. Automonization is, then, a collection of colleagues, but it is also the institutions which “keep the crowds of colleagues together” (Latour 103). For IMC, the medical institution is what binds colleagues together – although the colleagues may have vastly different interests.

The automization of IMC can be seen in recommendations that the AAP makes in their report. Their call for “workforce development” (775) is a recommendation that the IMC procedure should be standardized and medical professionals should be trained on how to perform the procedure and how to counsel families about the benefits and risks of the procedure. One recommendation is an explicit call for colleagues: “Key professional organizations (AAP, AAFP, ACOG, the American Society of Anesthesiologists, the American College of Nurse Midwives, and other midlevel clinicians such as nurse practitioners) should work collaboratively” to develop standards for things such as performance of pain reduction techniques, to teach other procedural techniques, and to develop education materials (775-776).

Latour’s third loop, Alliances, is of primary concern for this chapter. Alliances are groups outside of the research, groups that normally “wouldn’t give each other the time of day” (Latour, 103). Because there is no natural connection between a discipline and its alliances, Latour also maintains that an immense amount of persuasion goes into securing alliances and making their connections seem natural or inevitable. Alliances are created and constructed to appear natural. Certainly groups that fund particular research are critical alliances because they command a great degree of power, but in the case of the (new) alliance between AAP and IMC, organizations who may not be directly related to funding are vastly important to enroll in the system (network). The connection between AAP and IMC, does, however, seem quite natural. However, as we have

seen from the amount of work that went into medicalizing IMC, this connection only appears natural because of persuasive work. Before the 18th century, IMC as a medical practice would have been seen as quite unnatural.

The AAP is a very important alliance in the medicalization of IMC, because as an organization it commands more ethos than the research they use to support their decisions. Just as Latour indicates that Joliot cannot, by himself, make his assertions about neutrons a scientific fact, so too do the researchers such as those at Orange Farm need “others to bring about this transformation”(94-95). While the intentions of the Orange Farm researchers (Auvert, et al.) cannot be fully known, it is fair to assume that, to some degree, their enrollment of the AAP legitimizes their research, which in turn makes them more likely to get funding for similar research in the future, to get papers published, and to be recognized as experts in the field

The AAP is also in the business of forming alliances. One of the major points of their report is that the medical benefits of IMC necessitate reimbursement by insurance/Medicaid. They call circumcision a “cost-saving HIV prevention intervention” (777), and suggest that cost barriers that prevent families from having their male newborns circumcised should be eliminated. This argument is an attempt to enroll insurance companies (and state governments) as alliances. Certainly if insurance companies are to see IMC as medically necessary and recognize it as a viable HIV prevention strategy, then the case would be strengthened.

The fourth loop of Latour’s model is concerned with public representation. If science is used to “modify the associations of people and things” (Latour 105), then the public which the science effects needs to be enrolled as well. “Even if instruments were in place (loop 1), if peers had been trained and disciplined (loop 2), if well-endowed institutions were ready to offer a home to this wonderful world of colleagues and collections and if government, industry, army,

social security, and education provided sciences with wide support (loop 3), there would still be a great deal of work to be done” (Latour 105). Public representation is important because it is what effects people and their everyday practices. Latour recognizes this loop to be connected with the other loops and that “far from being a marginal appendage of science, this loop is part and parcel of the fabric of facts and cannot be left to educational theorists and students of media” (106). It may then fall in into the hands of what he calls Science Studies, or what we might call Rhetoric of Science.

Latour asks a number of important questions that we should consider. He posits that the role of science is “to modify “associations of people and things” (105) and ask us “how have societies formed representations of what science is: what is people’s spontaneous epistemology? How much trust do they place in science? How can this confidence be measured in different periods and for different disciplines” (105)? And he asks possibly the most of important question of all: “How can one produce a discipline that would modify everyone’s opinion, and nonetheless expect passive acceptance by all” (105-106)? It is because passive acceptance can no longer be expected that this loop is so important. For instance, major funding for HIV research is provided by private donations. In the early 90s a lot of work was done to change the public perception about the nature of the disease so that people might be more sympathetic. The connection between the foreskin and the transmission of HIV changes how we perceive the nature of HIV once again and may impact the amount and type of funding that can be attained. It is, of course, not a one way street so to speak – that is, scientists don’t just simply work to persuade the public of their research, but public representation “makes up a lot of the presuppositions of scientists themselves about their objects of study” (Latour 106). In short, this

fourth loop involves both how a public perceives science and scientific research, and how that perception shapes how scientists view their own work.

While we can say that the previous three loops are running quite efficiently, something goes wrong in the fourth loop. The purpose of the AAP's technical report on male circumcision is to help persuade the public, the continued debate over IMC suggests that it was not wholly successful. This is due, in part, to the gap between the context of the clinical research and the context of IMC in the United States. Although the enrollment of AAP is a big step towards complete medicalization, convincing the public of the medical need for IMC will prove to be a difficult task. Certainly public concern over the validity of research such as that of the Orange Farm RCT has created a need for additional, more comprehensive research in the United States. This highlights the interconnectedness of Latour's loops. If one loop is not functioning correctly, then it fails to achieve the goal of passive acceptance. This is where the 5th and final loop, what Latour calls links and knots, becomes important.

These links and knots are what connect everything together, they are "the pumping heart" (Latour 106) of the system. While Latour is careful with how he talks about links and knots by not explicitly calling them concepts, we may indeed understand the central loop of the figure as a core concept. The core concept at work in the medicalization of IMC is that the foreskin plays a role in the transmission of HIV. This is the idea that necessitates the other loops. Another way of seeing this is to envision the first four loops as the context of science, and the central loop as the content of science. It is also another way to explain a possible shortcoming of the AAP's report – it stalls in the public representation loop because it has not sufficiently blended the content of its science and the context of it.

Where we are now

I have shown, to some degree, how Latour's model might help us come to understand how the AAP's technical report on male circumcision attempts to engage in enrolling colleagues, alliances, and the public. I have not, however, given the evidence that this is their motive. One could argue, for instance, their suggestion that IMC be available to families who choose it is not an indication that they are "for" or "against" IMC. This distinction can be explained by comparing their 1999 statement and their 2012 statement.

An examination of the AAP's 1999 policy statement and their 2012 statement shows the differences in the language about their recommendations regarding IMC. In 1999, the AAP's recommendation was that "existing scientific evidence demonstrates potential medical benefits of newborn male circumcision; however, these data are not sufficient to recommend routine neonatal circumcision." In 2012, the revised policy reads "Evaluation of current evidence indicates that the health benefits of newborn male circumcision outweigh the risks.... Specific benefits identified included prevention of urinary tract infections, penile cancer, and transmission of some sexually transmitted infections, including HIV."

Given that the report cites that the most notable factor of their decision was a review of literature that indicated up to a 60% reduction in HIV transmission (764) and given that clinical trials like the Orange Farm RCT appears in their bibliography, it is reasonable to assume that HIV research, in fact, had a large effect on their policy decision. While other medical research is mentioned, it is mostly subsidiary and doesn't hold as much weight as the HIV research (parents, for instance, would be less concerned about a urinary tract infection as they would be about HIV).

The AAP's 2012 policy statement and accompanying technical report, while clearly stating that the medical benefits of IMC outweigh the risks, qualify this by indicating that the benefits might not be great enough to recommend routine circumcision for all infant boys. It is in examining this language where Latour may again prove valuable. He states that the elimination of modifiers is the marker for the appearance of a scientific fact. This type of modifier occurs in the 1999 statement with the word "potential." This is an indication that these benefits are not fully supported by research. In the 2012 statement we lose this modifier, but the recommendation is still hedged. The AAP is does not explicitly recommend routine circumcision, but offer it up as a choice. It would seem that this type of language is due, in part, to the complex rhetorical situation. Their plural audience of physicians and parents requires delicate language. I would be too brash, for instance, if they were to write "Infant Male Circumcision should be performed routinely because it helps prevent the transmission of HIV." This kind of language would serve as counterproductive, as it doesn't leave the possibility (or at least the façade) of choice.

Concluding thoughts and moving forward

I have suggested that Latour's Circulatory System of Scientific Facts can help us understand how IMC is increasingly becoming recognized as a possible medical deterrent for the transmission of HIV, and thus a medicalized practice. I have also argued that the language of the AAP's 2012 policy statement indicates a move toward the recognition of accepting the foreskin's possible role in the transmission of HIV as a scientific fact. An understanding of how facts are produced, such as those offered by Latour, can lead to an understanding of how the results of scientific research effect the practice of everyday life. Latour's model helps us understand what role, if any, the foreskin plays in the etiology of HIV and how that role is used to justify IMC in the United States.

CHAPTER 5: CONCLUSION

What I have attempted to show in this research is how the AAP's 2012 technical report functions as a rhetorical artifact. Using cluster analysis, I have demonstrated that while the report claims to suggest only that circumcision be an option for families, it works to convince them that choosing circumcision at the infant stage is the "best" option. By using Latour's model of science, I have highlighted the role of the AAP on a macro level. In particular, this research has shed light upon the IMC debate in the United States and what role the AAP plays in this debate.

By examining the issue at both a micro level using cluster criticism and at a macro level using Latour's model, I have indicated that while the AAP's report is a powerful tool for convincing parents to circumcise their infant males, the "public representation" of IMC has preventing passive acceptance. This may help to explain the overall backlash that the AAP continues to receive from various activist groups.

This research also shows that an infant has little role in the decisions being made about its body, and that even the parents, while said to be given the ultimate choice, are separated into those who make good choices and those who do not by the AAP's technical report on male circumcision. Because the AAP's report (along with myriad other documents) frames the potential medical risk of leaving boys uncircumcised around the contraction and spread of HIV, it situates those who make this choice as the other, as irresponsible, as public health deviants who must, then, take on the role of activist – whether they intend to be activists or not. Not circumcising infant males, and indeed not being circumcised (in the United States) has become a statement of social and (increasingly) sexual deviance. The term "uncircumcised" alone implies that there is something wrong or abnormal. The circumcised/uncircumcised binary suggests, of

course, that one is better, preferred, perhaps even *natural*, the irony of course is that, culturally, we prescribe “circumcised” to have the natural quality.

I hope that my research on IMC has also demonstrated how rhetorical criticism of medical texts can benefit from looking at kairos and agency and how they intersect. Understanding that there can be a kairos of the text and a kairos constructed within the text can help to illuminate at least one way in which medical arguments are persuasive.

Areas for further research

Time limitations of this research led to an analysis of a single text. While I believe the text is a fair representation of the issue, a more comprehensive review of the medical texts cited in the AAP’s report could shed even more light on the issue. In addition, further research into the effects of the text could be useful. While this would be difficult, a survey and analysis of educational materials presented at hospitals in regards to infant male circumcision could lead to a better understand of how the AAP’s recommendations impact the presentation of “unbiased” information. More than this, observations of conversations between medical experts and families expecting a child would provide a wealth of information about what kind of persuasion (if any) is happening at the clinical level. A study of if parents are actually getting information about circumcision, at what time, and from where would also be useful.

Concluding comments

After an analysis of a text such as this, there are often more questions than answers. I think this research leaves a consideration of the question Victoria Harden asks: “Whether rational scientific data can overcome strong social, religious, and political beliefs that are in conflict with science” (251). It seems that Harden might be thinking in the wrong way about this.

Perhaps we should not be asking how science can overcome social, religious and political beliefs, but how science can better understand them and their role in the “circulatory system of science.” This question assumes that science and nature must always be at odds; that there is something fundamental about both that make it impossible to negotiate the two. Perhaps social, religious and political beliefs are only in conflict with science because we have not worked hard enough to identify the space where they both can exist and prosper together.

If true circumcision choices for families and parents are to exist in the United States, a deeper understanding of social and medical concerns needs to be put forth by organizations such as the AAP. Clarity and specificity in the probable risk of contracting HIV via heterosexual contact and transparency in other preventative measures that might achieve the same benefit such as safe sex practices need to be included in reports that the AAP and other organizations release. By working to appease the public through better transparency the AAP can better achieve their goals of increased child safety while still offering viable choices for parents and families.

WORKS CITED

- AAP Facts*. American Academy of Pediatrics, n.d. Web. 18 Feb. 2013.
- Alcena, Valiere. "Aids in Thrid world Countries." *New York State Journal of Medicine* 86 (1986): 446. Print.
- American Academy of Pediatrics "Circumcision Policy Statement." *Pediatrics* 103 (1999): 686-93. Web. 5 Dec. 2013.
- American Academy of Pediatrics. "Technical Report on Male Circumcision." *Pediatrics* 130 (2012): 756-85. Print.
- Auvert B, Taljaard D, Lagarde E, Sobngwi-Tambekou J, Sitta R, Puren . "A: Randomized, Controlled Intervention trial of Male Circumcision for Reduction of HIV Infection Risk: The ANRS 1265 Trial." *PLOS Med* 2.11 (2005): 1112-22. Web. 5 Dec. 2012.
- Benoit, William. "A Note on Burke on Motive." *Rhetoric Society Quarterly* 26.2 (1996): 67-79. Web. 18 Feb. 2013.
- Berger, Paul. "Circumcision Rates Vary Widely in U.S." *The Jewish Daily* 28 Aug. 2012. Web. 18 Feb. 2013.
- Bollinger, Dan. "Infant Circumcision Causes 100 Deaths Each Year in U.S." *International Coalition for Genital Integrity*. 26 Apr. 2010. Web. 22 Feb. 2013.
- Burke, Kenneth. *Permanence and Change: An Anatomy of Purpose*. 3rd ed. Los Angeles: University of California Press, 1984. Print.
- Burke, Kenneth. *Philosophy of Literary Form: Studies in Symbolic Action*. Baton Rouge: Louisian State University Press, 1941. Print.

Cooper, Marilyn M. "Rhetorical Agency as Emergent and Enacted." CCC 62:3 (2011): 420–449.
Print.

"Could Circumcision Really Prevent AIDS." *Bay Area Intactivists*. Bay Area Intactivists , n.d.
Web. 18 Feb. 2013.

Darby, Robert. *A Surgical Temptation*. Chicago: University of Chicago Press, 2005. Print.

Darby, Robert. "The Masturbation Taboo and the Rise of Routine Male Circumcision: A Review
of the Historiography." *Journal of Social History* 27: 737-57. Web. 1 Dec. 2012.

Engel, Jonathan. *The Epidemic*. New York: HarperCollins, 2006. Print.

Fink, Aaron J. "A possible explanation for heterosexual male infection with AIDS." *New
England Journal of Medicine* 315 (1986): 1167. Print.

Foss, Sonja K. *Rhetorical Criticism: Exploration and Practice*. 4th ed. Long Grove: Waveland
Press, 2009. 63-70. Print.

Glick, Leonard. *Marked In Your Flesh: Circumcision From Ancient Judea to Modern America*.
New York: Oxford University Press, 2005. Print.

"Global HIV and Aids Estimates, 2009 and 2010." *Worldwide HIV and Aids Statistics*. AVERT,
n.d. Web. 18 Feb. 2013.

Graham, Scott. "Agency and the Rhetoric of Medicine: Biomedical Brain Scans and the
Ontology of Fibromyalgia." *Technical Communication Quarterly* 18.4 (2009): 376-404.
Web. 4 Nov. 2012.

Harden, Victoria. *AIDS at 30: A History*. Washington, D.C.: Potomac Books, 2012. Print.

Herndl, Carl, and Adela Licona. "Shifting Agency: Agency, Kairos, and the Possibilities of Social Action." *Communicative Practices in Workplaces and the Professions*. Ed. Mark Zachry and Charlotte Thralls. Amityville: Baywood Publishing, 2007. 133-53. Print.

History of the AAP. American Academy of Pediatrics, n.d. Web. 18 Feb. 2013.

HIV/AIDS Statistics and Surveillance. Center for Disease Control, 2012. Web. 6 Jan. 2013.

Jasinski, James. *Sourcebook on Rhetoric: Key Concepts in Contemporary Rhetorical Studies*. Thousand Oaks: Sage Publications, 2001. 367-73. Print.

Koerber, Amy. "Rhetorical Agency, Resistance, and the Disciplinary Rhetorics of Breastfeeding." *Technical Communication Quarterly* 15.1 2006: 87-101. Web. 10 Feb. 2013.

Latour, Bruno. *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge: Harvard University Press, 1999. Print.

"Male Circumcision." *Center for Disease Control*. Center for Disease Control, 22 Aug. 2012. Web. 12 Feb. 2013.

McNely, Brian J. and Christa Teston. "On the Atomization of Rhetoric." *5000*. Web. 24 Feb. 2013.

Miller, Carolyn R. "Kairos in the Rhetoric of Science." *A Rhetoric of Doing: Essays on Written Discourse in Honor of James L. Kinneavy*. Ed. Stephen P. Witte, Neil Nakadate, and Roger D. Cherry. N.p.: Southern Illinois University, 1992. 310-27. Print.

Miller, Carolyn R. "What Can Automation Tell Us About Agency?" *Rhetoric Society Quarterly* 37 (2007): 137-57. Web. 14 Feb. 2013.

- Preda, Alex. *AIDS, Rhetoric, and Medical Knowledge*. Cambridge: Cambridge University Press, 2005. Print.
- Rabin, Roni. "Steep Drop Seen in Circumcision in U.S." *New York Times* 16 Aug. 2010. Web. 5 Feb. 2013
- Rate of Circumcision in Adults and Newborns*. CircInfo, n.d. Web. 19 Feb. 2013.
- Schwartzman, Roy, Derek G. Ross, and David M. Berube. "Rhetoric and Risk." *Poroi* 7.1 (2011): 1-9. Web. 21 Feb. 2013.
- Scott, Robert L. "On Viewing Rhetoric as Epistemic." *Speech Communication* 18.1 (1967): 9-17. Web. 22 Feb. 2013.
- Scott, Robert L. "On Viewing Rhetoric as Epistemic: Ten Years Later." *The Central States Speech Journal*. 27.4 (1976): 258-266. Print.
- Tabak, Edin, and Michele Willson. "A Non-Linear Model of Information Sharing Practices in Academic Communities." *Library and Information Science Research* 34.2 (2012): 110-16. Web. 18 Jan. 2013.
- Teston, Christa. "Moving From Artifact to Action: A Grounded Investigation of Visual Displays of Evidence During Medical Deliberations." *Technical Communication Quarterly* 21.3 (2012): 187-209. Web. 8 Mar. 2013.
- White, Eric C. *Kaironomia: On the Will-to-Invent*. Ithaca: Cornell University Press, 1987. Print.