

## PAPER

# Out of step: fatal flaws in the latest AAP policy report on neonatal circumcision

J Steven Svoboda,<sup>1</sup> Robert S Van Howe<sup>2</sup>

<sup>1</sup>Attorneys for the Rights of the Child, Berkeley, California, USA

<sup>2</sup>Department of Pediatrics and Human Development, Michigan State University College of Human Medicine, Marquette, Michigan, USA

## Correspondence to

J Steven Svoboda,  
Attorneys for the Rights of the Child, 2961 Ashby Avenue, Berkeley, CA 94707, USA; arc@post.harvard.edu

Received 14 January 2013

Revised 18 February 2013

Accepted 19 February 2013

## ABSTRACT

The American Academy of Pediatrics recently released a policy statement and technical report on circumcision, in both of which the organisation suggests that the health benefits conferred by the surgical removal of the foreskin in infancy definitively outweigh the risks and complications associated with the procedure. While these new documents do not positively recommend neonatal circumcision, they do paradoxically conclude that its purported benefits 'justify access to this procedure for families who choose it,' claiming that whenever and for whatever reason it is performed, it should be covered by government health insurance. The policy statement and technical report suffer from several troubling deficiencies, ultimately undermining their credibility. These deficiencies include the exclusion of important topics and discussions, an incomplete and apparently partisan excursion through the medical literature, improper analysis of the available information, poorly documented and often inaccurate presentation of relevant findings, and conclusions that are not supported by the evidence given.

But the problem with any ideology is that it gives the answer before you look at the evidence. So you have to mold the evidence to get the answer that you've already decided you've got to have. It doesn't work that way.

—William Jefferson Clinton, September 20, 2012 on *The Daily Show*

## INTRODUCTION

The American Academy of Pediatrics (AAP) has recently released a policy statement and technical report on circumcision,<sup>1</sup> in both of which the venerable child health organisation-cum-doctors' trade association suggests that the health benefits conferred by the surgical removal of the foreskin in infancy definitively outweigh the risks and complications associated with the procedure. This long awaited pronouncement from the AAP's Task Force on Circumcision breaks the organisation's silence on the topic, which extended for just over one and a third decades.<sup>2</sup> And while these new documents do not positively *recommend* neonatal circumcision, they do (paradoxically) conclude that its purported benefits 'justify access to this procedure for families who choose it,' claiming that whenever and for whatever reason it is performed, it should be covered by government health insurance.

This turns out to be an extremely delicate and, in the end, arguably untenable, balancing act. As the Oxford ethicist Brian D Earp comments, the policy statement 'is full of equivocations, hedging, and

uncertainty; and the longer report upon which it is based is replete with non-sequiturs, self-contradiction, and blatant cherry-picking of essential evidence.'<sup>3</sup> And as argued in a forthcoming international statement criticising the AAP's new policy, both documents exhibit cultural bias in favour of circumcision, and seem to put the AAP firmly out of step with world medical opinion on this issue.<sup>4</sup>

Indeed, as we shall demonstrate over the course of the following pages, the policy statement and technical report suffer from several troubling deficiencies, ultimately undermining their credibility. These deficiencies include the exclusion of important topics and discussions, an incomplete and apparently partisan excursion through the medical literature, improper analysis of the available information, poorly documented and often inaccurate presentation of relevant findings, and conclusions that are not supported by the evidence given.

## CONSPICUOUS OMISSIONS

The policy statement and the accompanying technical report may be most notable for what they do *not* address. The documents fail to engage with several critical issues: (1) the anatomy or function of the foreskin and the harm caused by its removal, (2) basic principles of biomedical ethics and how they bear upon the permissibility of the procedure in the first place and (3) fundamental issues in human and children's rights and their relevance to the surgical infringement of bodily integrity. Any one of these omissions would, by itself, seriously compromise the integrity of the policy statement and the technical report; considered together, however, they might be taken to call into question the AAP's diligence in carrying out its medical and ethical responsibilities in this area toward its constituent members and their child patients.

The AAP documents steadfastly omit any description, let alone evaluation, of the body part actually at stake in this discussion: the foreskin. The foreskin is of course *mentioned*—as the structure that is removed by circumcision—but that is all. Yet the anatomy, histology, physiology and pathophysiology of the foreskin are all well described in the medical literature. The foreskin is a complex, erogenous, specialised junctional structure that has important sexual, immunological and protective functions for the intact male as well as for his female sexual partners.<sup>5–8</sup> Despite the recent appearance of a timely and important study demonstrating the significant deleterious impact of male circumcision on sexuality,<sup>9</sup> the documents

**To cite:** Svoboda JS, Van Howe RS. *J Med Ethics* Published Online First: [please include Day Month Year] doi:10.1136/medethics-2013-101346

neglect to address these and other negative effects of foreskin removal.

Studies showing pain and changes in infant behaviour after circumcision are not so much as mentioned. Yet, circumcision adversely affects the developing infant brain by causing trauma-grade increases in heart rate, blood pressure and stress hormone levels.<sup>10–11</sup> Some infants do not cry because they go into shock. Mother–infant bonding and feeding is disrupted, as are infant sleep patterns.<sup>11–13</sup> Circumcised infants become more irritable and less consolable than their intact peers.<sup>14</sup>

The documents also fail to mention foundational principles from biomedical ethics. Seemingly, such notions as respect for autonomy, the child's right to an open future, and the normally high bar set for surgical interventions on minors would be at least worth *alluding* to in a serious discussion of the moral permissibility of male circumcision. Yet the AAP's repeated, unsupported, alternative suggestion that, 'In most situations, parents are granted wide latitude in terms of the decisions they make on behalf of their children' constitutes their entire ethical argument.<sup>i</sup> This assertion badly misstates the law. The powerful ethico-legal precedent set by the United States Supreme Court in 1944 in *Prince v Massachusetts* and subsequently reaffirmed by countless courts holds: 'Parents may be free to become martyrs themselves. But it does not follow they are free, in identical circumstances, to make martyrs of their children before they have reached the age of full and legal discretion when they can make that choice for themselves.'<sup>ii</sup>

As we have argued elsewhere,<sup>15</sup> non-therapeutic circumcision of neonate males is incompatible with widely accepted ground rules for surgical intervention in minors. A proposed non-therapeutic procedure must satisfy a stringent set of criteria: there must be a substantial danger to public health; the condition must have serious consequences if transmitted; the intervention's effectiveness must be well established; the intervention must be the most appropriate, least invasive, and most conservative way of achieving the desired public health objective; and the individual must be provided with appreciable benefit not dependent on speculation about his or her hypothetical future behaviour. For procedures to be performed on children unable to give consent, heightened scrutiny of any such measures is required.<sup>15</sup> Given, however, that a healthy foreskin (as opposed to a diseased one) poses no threat either to personal or to public health, it follows that any form of 'treatment'—apart from being simply illogical—is ethically impermissible as well, since parents lack the authority to grant permission for such a practice.<sup>iii</sup>

Furthermore, the AAP's circumcision recommendations contradict its own bioethics policy statement. This statement affirms that parental wishes *cannot* justify unnecessary surgery and that 'providers have legal and ethical duties to their child patients to render competent medical care based on what the patient needs, not what someone else expresses.' According to this same bioethics policy statement, a 'pediatrician's

responsibilities to his or her patient exist independent of parental desires or proxy consent.'<sup>16</sup>

The AAP ignores a child's well-established human and legal rights. These include—as confirmed by the June 2012 landmark ruling of a regional court of Cologne, Germany<sup>iv</sup>—the right of a child to decide for himself upon reaching an appropriate age whether he wants to part with his foreskin. The foreskin is, after all, a functional component of his own sexual anatomy, and one enjoyed without serious issue by a majority of the world's men. Instead, the AAP suggests—with more honesty than ethics—that the common reluctance of an older child or adult to be circumcised justifies parents forcing a genital operation upon him at an age when he is too small to effectively resist.<sup>v</sup>

With the exception of a recent law passed in Germany to protect circumcision considered specifically as a *religious* rite<sup>17</sup>—which may in any event be vulnerable to being overturned on constitutional grounds<sup>18</sup>—the discussion in Europe has moved away from whether infant circumcision is potentially justifiable, to whether circumcision is in fact a violation of the infant's basic rights. Increasingly, national medical organisations in countries such as Sweden, Finland and The Netherlands, are calling for an outright ban on infant circumcision, whether performed for religious or cultural reasons.<sup>19–21</sup> Most recently, Germany's official Paediatric Association, the Berufsverband der Kinder und Jugendärzte (BVKJ), vehemently opposed the German bill that later became law, supporting instead an alternative bill that upheld boys' right to bodily integrity.<sup>22</sup> The BVKJ prominently cited a commentary that forms a portion of this article<sup>23</sup> and strongly criticised the technical report and policy statement.<sup>vi</sup>

Under US law, human rights documents form part of the supreme 'law of the land.' Among the many human rights violated by male circumcision are the rights to privacy, to liberty, to security of person and to physical integrity. For example, the Universal Declaration of Human Rights (UDHR) guarantees the right to privacy (Article 12) and provides that 'everyone has the right to life, liberty and security of the person' (Article 3).<sup>vii</sup> Articles 9 and 17<sup>viii</sup> of the International Covenant on Civil and Political Rights (ICCPR) and article 16<sup>ix</sup> of the Convention on the Rights of the Child (CRC) contain parallel safeguards. Circumcision entails an impermissible disruption of privacy insofar as a child's genitals are altered without his consent and without valid medical justification. Circumcision also needlessly endangers the right to life guaranteed by these same human rights documents in UDHR Article 3, ICCPR Article 6, and CRC Article 6.<sup>x</sup>

<sup>iv</sup>Landgericht Köln; 7 May 2012; Urteil Ns 169/11.

<sup>v</sup>Subsequent to the appearance of the AAP documents, German legislators have passed into law a bill legalising circumcision.<sup>17</sup>

<sup>vi</sup>Moreover, in late November of 2012, criminal charges of inflicting grievous bodily harm were brought against two Austrian circumcisers. The charges mention the child's right to physical integrity, the absence of informed consent, and that religious motivation does not excuse the wrongful act.<sup>24</sup>

<sup>vii</sup>Universal Declaration of Human Rights. G.A. Resolution 217A (III). United Nations Document No. A/810 (1948). Adopted December 10, 1948.

<sup>viii</sup>Convention on the Rights of the Child. United Nations General Assembly Resolution 44/25. Adopted 20 November 1989.

<sup>ix</sup>International Covenant on Civil and Political Rights. United Nations General Assembly Resolution 2200 A [XXI]. Adopted 16 December 1966.

<sup>x</sup>The applicability under US law of human rights provisions to male circumcision is explored in greater detail in a forthcoming article by

<sup>i</sup>The AAP neither mentions nor addresses well-known counter-arguments demonstrating that parental authority is limited and does not extend to decisions of this sort.<sup>17</sup>

<sup>ii</sup>*Prince v. Massachusetts*, 321 U.S. 158, 170 (1944).

<sup>iii</sup>Furthermore, the word 'condom' is entirely absent from the thirty-page technical report. Omitting to mention more effective, safer, and less invasive alternative interventions (such as condom use or the administration of vaccines and antibiotics) undermines *any* type of informed decision-making with respect to circumcision.

Male circumcision also contravenes numerous civil and criminal laws. Malpractice awards are mounting up, including a June 2012 US\$700 000 settlement reported in the Massachusetts Lawyers Weekly.<sup>25</sup> The technical report mentions the Mogen clamp. The AAP is evidently unaware that this device was produced by a company that went out of business after a lawsuit on behalf of an infant who lost his penis resulted in a US\$10.8 million award.<sup>26</sup>

## FAULTY EVIDENCE

In addition to the troubling omissions just discussed, the AAP report suffers from being two-and-a-half years out of date at the time of its publication. The last literature search was performed in April 2010 for a report published in August 2012. Moreover, the AAP documents evidence a highly biased literature review. The AAP arbitrarily—and indefensibly—excludes from consideration case reports, case series, ecological studies, reviews and opinions. By doing so, it failed to consider the most serious complications associated with the procedure, such as partial and complete amputation of the glans of the penis, which are typically described in (virtually innumerable) case reports and case series.<sup>27–61</sup>

Studies that suggest benefits for circumcision appear in the technical report, while at least 100 studies that fail to support a benefit, or that find detrimental effects of circumcision are omitted. The exclusionary policy also has an odd geographic element to it. Conspicuously absent are studies from North America of sexually transmitted infections, including HIV, which have consistently failed to find an association between sexually transmitted infections and circumcision status. The AAP imports data from another continent (see below) as the only available justification of its conclusion that the benefits outweigh the risks.<sup>x1</sup>

The AAP also cherry-picks information from *within* the articles it cites. For example, the AAP selects bits of language out of context that lend support to its position while completely ignoring contradictory data. The AAP cites a study that determined that male circumcision removes the most sensitive part of the penis, but fails to cite this finding.<sup>63xiii</sup> The AAP also mentions a study suggesting that circumcising men increases the risk of HIV transmission to female sexual partners, while ignoring that presumably uncongenial finding.<sup>65</sup> The AAP even cites a study showing that smoking and a narrow foreskin, not a normal one, contribute to penile cancer, then suggests that circumcision of normal foreskins can help prevent penile cancer.<sup>66</sup>

## LOGICAL LEAPS

One puzzling aspect of the AAP policy statement is a contradictory dance performed on the question of how strong the alleged benefits of the procedure are. On the one hand, it is described as an ‘elective procedure’, and moreover, one for which the ‘health

benefits are not great enough to recommend routine circumcision of all male newborns.’ The AAP admits that ‘the true incidence of complications after newborn circumcision is unknown,’ stating also, ‘Based on the data reviewed, it is difficult, if not impossible, to adequately assess the total impact of complications, because the data are scant and inconsistent regarding the severity of complications.’ Yet despite the purported lack of complication data<sup>xiii</sup> the AAP somehow manages to conclude that ‘... current evidence indicates that the health benefits of newborn male circumcision outweigh the risks’. Since they concede that they are missing the denominator to their equation, one wonders how they performed this calculation.

Furthermore, the AAP concludes, without performing any recognised form of analysis, that the purported benefits of circumcision are ‘sufficient’ to ‘justify access to this procedure for families choosing it’ and to ‘warrant third-party payment for circumcision of male newborns’ if and when it does occur. This conclusion, without the proper foundation, comes out of nowhere. It is not a result of the literature search, biased though it is; nor does it follow from a cost analysis of benefits versus risks, because no such analysis took place.<sup>xiv</sup> While a noted circumcision proponent has published a cost analysis that found that circumcision did not save money,<sup>90</sup> this was not mentioned. The AAP also failed to cite that cost-effective analyses have found that circumcision was much more costly than condoms or antiretroviral therapy to prevent a case of HIV infection in Africa,<sup>91</sup> or several cost-utility analyses have found that circumcision neither saved money nor preserved quality-adjusted life-years.<sup>92–95</sup>

As argued in the commentary by Earp cited earlier, ‘The AAP cannot plausibly justify “third party payments” for a procedure that is more perilous, more ethically problematic, less effective and less *cost* effective than available alternatives. The government dime is clearly better spent elsewhere.’<sup>3</sup> Indeed, the AAP calls circumcision an ‘elective procedure,’ but families are typically not allowed to choose *elective* procedures, such as purely cosmetic surgery, for their children. Also, third parties are not willing to pay for *elective* procedures. The AAP wants physicians to get paid for unnecessary surgery, but if the AAP were to call it necessary surgery and recommend it, then it would potentially bear responsibility for any complications or harm resulting from the surgery.<sup>xv96</sup> Thus, presumably, the attempt to walk a fine line.

## OUT OF AFRICA: CIRCUMCISION AND HIV

The AAP maintains—as previously asserted in its 1999 policy statement<sup>97</sup>—that the ‘health benefits (of circumcision) are not great enough to recommend routine circumcision of all male newborns.’ Yet without any genuine justification, the AAP has, nevertheless, adjusted its position toward greater tolerance of

Svoboda. The CRC, while unratified by the US, is applicable to the US under international customary law, as explained in this article.

<sup>x1</sup>As with the parental permission rule discussed above, in medical ethics, the risk/benefit evaluation was designed to evaluate therapeutic procedures, that is, procedures directed to addressing an existing pathology.<sup>62</sup> Such a balancing is thus completely irrelevant to non-essential surgery that removes functional tissue. This is all the more true when, as here, safer and more effective alternatives are available for resolving the same concerns.

<sup>xii</sup>A common misconception is that the glans is the most sensitive portion of the penis, but studies have found that compared to the foreskin, the glans is a neurologically blunt organ, on par with heel of the foot.<sup>64</sup>

<sup>xiii</sup>The AAP did not look very hard for complications. Even a cursory review of the medical literature would have turned up the fact that one common delayed complication of infant circumcision, meatal stenosis, afflicts 5–20% of circumcised males.<sup>67–89</sup> Since most of these patients require a meatotomy, the number needed to harm is between five and twenty.

<sup>xiv</sup>To demonstrate that the benefits of circumcision outweigh the risks to such a degree that government health services should be compelled to reimburse physicians and hospitals, both the benefits and risks must be quantified, the benefits must be shown to outweigh the risks, the cost of providing these benefits must be shown to be acceptable, and circumcision must be shown to be the preferred intervention (on the basis of cost, effectiveness, and benefit-to-risk). The AAP completed none of these tasks.

<sup>xv</sup>Snyder v. American Association of Blood Banks, 676 A.2d 1036. New Jersey, 1996.

just such an outcome.<sup>xvi</sup> In an attempt to explain its evolving position, the AAP makes much ado about three ‘randomised-controlled’ clinical trials conducted in Africa between 2005 and 2007, resting its case for ‘new’ health benefits almost entirely on the back of these studies.<sup>98–100</sup>

Problematically, however, the African studies were closer to a lowest common denominator than the ‘gold standard’ suggested by the New York Times,<sup>101</sup> suffering from numerous critical flaws including selection bias, randomisation bias, experimenter bias, inadequate blinding, participant expectation bias, lack of placebo control, inadequate equipoise, excessive attrition of subjects, failure to investigate non-sexual HIV transmission, lead-time bias, and time-out discrepancy.<sup>102–107</sup> Additionally, the ‘60%’ figure typically cited as the reduction-of-risk outcome shown by the studies refers to *relative* risk and seems calculated to deliberately mislead; the absolute risk reduction was only a negligible 1.3%. With such a small absolute risk reduction, it is difficult to know if this finding is valid, given the background noise produced by the numerous sources of bias.

Furthermore, the US has both the highest rate of circumcision and the highest rates of HIV and sexually transmitted infections in the industrialised world, so a claim that the first can prevent the other two seems highly implausible. The AAP admits as much by saying that ‘key studies to date have been performed in African populations with HIV burdens that are epidemiologically different from HIV (burdens) in the United States.’ The epidemiological differences are in fact vast; in Africa, one of the ‘best’ places to become infected with HIV is at a health clinic through iatrogenic exposure,<sup>108–109</sup> whereas in the developed world, HIV is primarily transmitted by injecting drug users and by gay men. The dramatic differences between the African and American medical and epidemiological settings could hardly be more stark.<sup>xvii</sup>

It must also be emphasised that the findings in Africa—even if we were to accept them on their face—apply only to adult males. There are no studies that have found an association between infant circumcision and risk for heterosexually transmitted HIV. Infants, unless they are sexually molested, are not at risk for sexually transmitted HIV. Removing functional tissue from an infant, therefore, based on speculation about his sexual behaviour decades later makes very little sense. At best, the African studies could be used to justify suggesting to *an adult male* that circumcision might help reduce his risk of becoming infected with HIV—assuming, of course, that he refused to wear condoms and took little care in selecting his sexual partners.<sup>xviii</sup>

<sup>xvi</sup>So ambiguous and contradictory is the AAP’s language that several media reports concluded that they *had*, in fact, recommended routine circumcision: for example, ‘Routine circumcision of boys advisable: U.S. Study’ in the *Vancouver Sun*, available at <http://www.vancouversun.com/health/Routine+circumcision+boys+advisable+study/7154611/story.html>

<sup>xvii</sup>North American data, inexplicably ignored by the AAP, demonstrates the lack of relevance of the African RCTs.<sup>110–115</sup> Only one of these studies demonstrated any difference in rates of HIV and AIDS, but only in a select sub-population and not for the entire population seeking care at the STD clinic.<sup>114</sup> Moreover, a recent study from Puerto Rico showed that circumcised men had *higher* risks relative to intact men for both HIV and for a number of other conditions including genital warts.<sup>111</sup> It is alarming that the AAP ignored studies conducted in the US.

<sup>xviii</sup>Paradoxically, the AAP also contradicts its statement about epidemiological differences by stating that it ‘recommends additional studies to better understand... [t]he impact of male circumcision on transmission of HIV and other STIs in the United States.’

## OTHER RED HERRINGS: HUMAN PAPILLOMA VIRUS, SYPHILIS, PENILE CANCER AND URINARY TRACT INFECTIONS

Studies on other sexually transmitted infections are not appreciably different from what was seen in 1999. The only ‘new’ finding is an association shown in some studies between human papilloma virus (HPV) infection and circumcision status. Embarrassingly, the findings in these highly publicised studies can be completely attributed to sampling bias and lead-time bias.<sup>116–118</sup> Studies of HPV that have used proper sampling techniques have failed to find an association between these infections and circumcision.<sup>119–129</sup> If the AAP had evaluated these trials properly, rather than repeat their results without exploring them for fatal flaws, it would have reached a different conclusion. Of course, if it had bothered to mention the existence of an effective HPV vaccine anywhere in their technical report, it could have skipped the circumcision-prevents-HPV discussion altogether.

The AAP’s discussion of syphilis is likewise myopic. While it notes that the prevalence of syphilis, primarily in Africa, has been found to be lower in circumcised men,<sup>130</sup> they fail to note that two of the African randomised trials found the incidence of syphilis to trend higher in the men randomised to early circumcision.<sup>131–132</sup> Consequently, the evidence is conflicting. Likewise, if the AAP had systematically reviewed the medical literature, as it claims to have done, it would have discovered that circumcised males have a significantly greater prevalence of having a sexually transmitted infection in general as opposed to not having a sexually transmitted infection.<sup>118</sup> There is no excuse for this lack of scholastic rigor.

In the discussion regarding penile cancer risk, the AAP report gets the numbers completely wrong. It incorrectly alleges that 909 circumcisions would need to be performed to prevent one case of penile cancer. This estimate is inconsistent with the known epidemiology in the USA, where the age-adjusted rate of penile cancer is approximately 0.8 per 100 000 person-years.<sup>133–134</sup> This translates into a lifetime risk of 0.000576 or 1 in 1736. If as claimed, circumcision reduces the risk by a factor of 2.5, the lifetime risk for a circumcised male would be 0.0002304. The absolute risk reduction would be the difference, or 0.0003456. The number needed to treat would be the inverse of the absolute risk reduction or 2894, which is triple the AAP’s number. What remains unexplained is that the rates of penile cancer in the USA exceed those in Denmark, Norway, Finland and Japan, where infant circumcision is rare.<sup>135–138</sup>

As the BVKJ also noted, the only possible benefit of circumcision in infancy (as opposed to waiting until the age of consent) is a reduction in the risk of contracting a urinary tract infection. These infections are rare (approximately 1%), limited primarily to the first 6 months of life, are easily and effectively treated with oral antibiotics, and very rarely result in hypertension or long-term kidney disease. The report fabricates the number needed to treat as 100, while a population-based cohort study estimated the number needed to treat at 195.<sup>139</sup> If 195 circumcisions are needed to prevent one urinary tract infection, and the cost of circumcision is US\$200, then US\$39 000 will be spent to prevent one urinary tract infection. The cost to diagnose a urinary tract infection is about US\$200, and the cost of treatment via antibiotics is about US\$18. Already, the senselessness of the pre-emptive surgical course is clear. But what about the costs related to harm and complications? The cost of a meatotomy (a corrective procedure in which meatal stenosis, or circumcision-induced constriction of the urethral opening, is

repaired) is between US\$1000 and US\$1500. With one case of meatal stenosis occurring as a result of every 5–20 circumcisions performed,<sup>xix</sup> the cost of this corrective surgery in a population of 195 males would be between US\$9750 and US\$58 500. So, between US\$48 750 and US\$97 500 would have to be spent to save approximately US\$218. Either through incompetence or design, the AAP fails to make these straightforward calculations.

Moreover, and critically, even if male circumcision were proven to confer a level of protection against HIV/AIDS and/or other STDs, infants nevertheless cannot be ethically subjected to the procedure. Because of the demonstrable availability of a less expensive, less invasive, more cost-effective alternative—that is, voluntary condom use by sexually active adults—the genital cutting of a young child toward the same supposed end cannot plausibly be reconciled with the dictates of medical ethics. Certainly, given that a more effective alternative exists, as the Cologne Court correctly held, medical ethics requires that the child must in such cases be allowed to make his own decision upon reaching an appropriate age.

### CULTURAL CONSIDERATIONS

Regarding cultural and religious considerations, the AAP fancifully claims several points, using slightly different language, ‘It is reasonable to take these non-medical benefits and harms for an individual into consideration when making a decision about circumcision.’ In fact, few things are less reasonable and more unprecedented than physicians making medical decisions based on non-medical factors and vagaries of their infant patients’ parents’ culture and religion as *central to whether* to do a procedure. Doctors are not cultural brokers. Their business is safeguarding patients’ health, not promoting practices that lack a sound foundation in evidence-based medicine and in medical ethics.

Moreover, a huge logical hole appears when the policy statement suggests 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.’ One cannot coherently argue that circumcision is elective and of variable value at the individual level, yet decisively important in a larger public health context.

This is not the first time in recent years that the AAP has issued an ill-advised position statement relating to a form of genital cutting. The AAP released a policy statement in 2010 in *Pediatrics* defending certain forms of *female* circumcision if performed for ‘cultural’ reasons.<sup>140</sup> Physicians who had followed the AAP’s suggestion at that time would have thereby violated federal law protecting females from such procedures. After numerous organisations opposing genital cutting pointed out the errors, the AAP quickly issued a terse retraction of its previous statement.<sup>141 142</sup> At least the AAP has been consistent: that report also failed to acknowledge children’s right to bodily integrity.

### CONCLUSION

The AAP appears to be forking off even further in an inexplicable departure from the views of the rest of the medical establishment on the morality and science of childhood circumcision. Even the American Medical Association agrees that there is insufficient justification for performing the procedure on

newborns absent specific medical indications.<sup>143</sup> Unlike the AAP, its peer organisations in Europe and also in Australia, the UK and Canada<sup>144–146</sup> recognise that medical considerations must be considered in conjunction with ethical and legal considerations, and that under such an analysis, it should be neither recommended to parents nor funded by government insurance systems. The Finnish Union of Medical Doctors (Suomen Lääkäriliitto) is opposed to non-medical circumcision on the grounds that it involves risks, inflicts pain and injury, and violates the child’s right to decide about his body,<sup>20</sup> and the Royal Dutch Medical Association (KNMG) has gone so far as to discourage its membership from participating in the procedure as it carries risks without countervailing benefits.<sup>21</sup> The Swedish Paediatric Society has called infant male circumcision an ‘assault on boys.’<sup>19</sup> As discussed above, the German BVKJ also strongly opposes the procedure.<sup>22</sup>

Over 100 boys die each year from this needless procedure, even when performed under optimal conditions in a medical setting, yet the AAP fails to attach much significance to the deaths stemming from the practice.<sup>147</sup> Rather than objectively evaluating all available evidence, the AAP selectively quotes and references highly contested and controversial studies to attempt to justify an entrenched, yet outmoded, cultural—not medical—practice.

The lack of attention to detail and depth of discussion suggests that the AAP was not concerned about the medical quality of their product. Other policy statements by the AAP are typically extremely well written, well researched, with in-depth discussion.

We question why the AAP is championing public funding for an unnecessary surgery at a time when the US faces a crisis in not being able to provide even necessary care for all its children. As was just demonstrated in a report by the Institute for Medicine, an astonishing US\$750 billion is wasted on healthcare each year in the USA.<sup>148</sup> In these days of rising medical costs and scarce resources, we simply cannot afford to continue to carry out such a harmful and outmoded practice.

Even in the far from definite case that benefits do exist, as the KNMG notes, ‘it is reasonable to put off circumcision until the age at which such a risk is relevant and the boy himself can decide about the intervention, or can opt for any available alternatives.’<sup>21</sup> Accordingly, the AAP should immediately retract its policy statement and technical report and replace them with documents reflecting such critical concerns as the functions of the lost tissue, medical ethics and the importance of respecting non-consenting children’s rights.

**Contributors** JSS wrote the first draft and submitted the paper and took the lead in preparing it. Mr. RSVH wrote intermediate drafts and made substantial contributions to its preparation including the majority of references.

**Competing interests** None.

**Patient consent** Obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

### REFERENCES

- 1 American Academy of Pediatrics Task Force on Circumcision. Technical report: male circumcision. *Pediatrics* 2012;130:e757–85.
- 2 American Academy of Pediatrics Task Force on Circumcision. Circumcision policy statement. *Pediatrics* 2012;130:585–6.
- 3 Earp BD. The AAP report on circumcision: bad science+bad ethics=bad medicine. *Practical Ethics*. University of Oxford. <http://blog.practicaethics.ox.ac.uk/2012/08/the-aap-report-on-circumcision-bad-science-bad-ethics-bad-medicine/> (accessed 31 Dec 2012).
- 4 Raven S. German pediatric association condemns circumcision. 31 December 2012. <http://www.sodahead.com/united-states/german-pediatric-association-condemns-circumcision/question-3426045/> (accessed 8 Jan 2012).
- 5 Winkelmann RK. The cutaneous innervation of human newborn prepuce. *J Invest Dermatol* 1956;26:53–67.

<sup>xix</sup>The number needed to harm is the inverse of the expected complication rate following an intervention. In this case for every 5–20 circumcision performed one would expect a case of meatal stenosis requiring surgical correction.

- 6 Taylor JR, Lockwood AP, Taylor AJ. The prepuce: specialized mucosa of the penis and its loss to circumcision. *Br J Urol* 1996;77:291–5.
- 7 Cold CJ, Taylor J. The prepuce. *BJU Int* 1999;83(Suppl 1):34–44.
- 8 O'Hara K, O'Hara J. The effect of male circumcision on the sexual enjoyment of the female partner. *BJU Int* 1999;83(Suppl 1):79–84.
- 9 Frisch M, Lindholm M, Grønbæk M. Male circumcision and sexual function in men and women: a survey-based, cross-sectional study in Denmark. *Int J Epidemiol* 2011;40:1367–81.
- 10 Van Howe RS. Anesthesia for neonatal circumcision: who benefits? *J Prenatal Perinatal Psychol Health* 1997;12(1):3–18.
- 11 Gunnar MR, Malone S, Vance G, et al. Coping with aversive stimulation in the neonatal period: quiet sleep and plasma cortisol levels during recovery from circumcision. *Child Dev* 1985;56:824–34.
- 12 Marshall RE, Porter FL, Rogers AG, et al. Circumcision: II. Effects upon mother-infant interaction. *Early Hum Dev* 1982;7:367–74.
- 13 Anders TF, Chalemian RJ. The effects of circumcision on sleep-wake states in human neonates. *Psychosom Med* 1974;36:174–9.
- 14 Dixon S, Snyder J, Holve R, et al. Behavioral effects of circumcision with and without anesthesia. *J Dev Behav Pediatr* 1984;5:246–50.
- 15 Hodges FM, Svoboda JS, Van Howe RS. Prophylactic interventions on children: balancing human rights with public health. *J Med Ethics* 2002;28:10–16.
- 16 Committee on Bioethics. Informed consent, parental permission, and assent in pediatric practice. *Pediatrics* 1995;95:314–17.
- 17 Jordans F. Germany approves bill to protect male circumcision. <http://start.localnet.com/article.php?category=topstories&article=a028ec0da5f4458fa200891071b65d0d> (accessed 19 Dec 2012).
- 18 Walter T. Der gesetzentwurf zur beschneidung—kritik und strafrechtliche alternative. *Juristenzeitung* 2012;22:1110–17.
- 19 Guiborg C. Swedish docs in circumcision protest. *The Local*, 19 February 2012. <http://m.thelocal.se/39200/20120219/> (accessed 7 Nov 2012).
- 20 Suomen Lääkäriliitto. Poikien ympärileikkaus. <http://www.laakariliitto.fi/uutiset/kannanotot/ymparileikkaus.html> (accessed 7 Nov 2012).
- 21 Royal Dutch Medical Association. *Non-therapeutic circumcision of male minors*. Amsterdam: KNMG, 2010.
- 22 Hartmann W; Berufsverbands der Kinder- und Jugendärzte. Gesetzentwurf der bundesregierung: "entwurf eines gesetzes über den umfang der personensorge bei einer beschneidung des männlichen kindes." [http://www.kinderaerzte-im-netz.de/bvki/kinpopup/pfile/pdf/70/121126\\_Ste50aa5e211e6a6.pdf](http://www.kinderaerzte-im-netz.de/bvki/kinpopup/pfile/pdf/70/121126_Ste50aa5e211e6a6.pdf) (accessed 9 Jan 2013). The BVKJ's official translation into English of this statement, titled "German pediatric association condemns circumcision: expert statement," [http://www.intactamerica.org/german\\_pediatrics\\_statement](http://www.intactamerica.org/german_pediatrics_statement) (accessed 9 Jan 2013).
- 23 Svoboda JS. Neonatal circumcision violates children's rights, needlessly amputating functional tissue. <http://arclaw.org> (accessed 19 Dec 2012).
- 24 Campaign against church privileges (Volksbegehren gegen Kirchenprivilegien). Erstmals strafanzeige gegen muslimischen und jüdischen beschneider. <http://www.kirchen-privilegien.at/archives/2046#more-2046> (accessed 19 Dec 2012).
- 25 Anonymous. Infant sustains partial amputation during bris. *Massachusetts Lawyers Weekly* 21 June 2012.
- 26 Tagami T. Atlanta lawyer wins \$11 million lawsuit for family in botched circumcision. *The Atlanta Constitution* 19 July 2010. <http://www.ajc.com/news/news/national/atlanta-lawyer-wins-11-million-lawsuit-for-family-InQhJN/> (accessed 19 Dec 2012).
- 27 Brimhall JB. Amputation of the penis following a unique method of preventing hemorrhage after circumcision. *St Paul Med J* 1902;4:490.
- 28 Bierhoff F. Notes on conditions resulting from ritual circumcision. *N Y Med J* 1912;95:1037–8.
- 29 Ehrich WS. Two unusual penile injuries. *J Urol* 1929;21:239–41. Cited in: Hashem et al (ref. 53).
- 30 Cohen BE, May JW Jr, Daly JS, et al. Successful clinical reimplantation of an amputated penis by microvascular repair. Case report. *Plast Reconstr Surg* 1977;59:276–80. Cited in: Hashem et al (ref. 53).
- 31 Patel HI, Moriarty KP, Brisson PA, et al. Genitourinary injuries in the newborn. *J Pediatr Surg* 2001;36:235–9.
- 32 Sherman J, Borer JG, Horowitz M, et al. Circumcision: successful glanular reconstruction and survival following traumatic amputation. *J Urol* 1996;156:842–4.
- 33 Gold S. Bleeding after circumcision. *Can Med Assoc J* 1940;43:473.
- 34 Levitt SB, Smith RB, Ship AG. Iatrogenic microphallus secondary to circumcision. *Urology* 1976;8:472–4.
- 35 Money J. Ablatio penis: normal male infant sex-reassigned as a girl. *Arch Sex Behav* 1975;4:65–71.
- 36 Azmy A, Boddy SA, Ransley PG. Successful reconstruction following circumcision with diathermy. *Br J Urol* 1985;57:587–8.
- 37 Gilbert DA, Jordan GH, Devine CJ Jr, et al. Phallic construction in prepubertal and adolescent boys. *J Urol* 1993;149:1521–6.
- 38 Ahmed A, Mbibi NH, Dawam D, et al. Complications of traditional male circumcision. *Ann Trop Paediatr* 1999;19:113–17.
- 39 Gearhart JP, Rock JA. Total ablation of the penis after circumcision with electrocautery: a method of management and long-term followup. *J Urol* 1989;142:799–801.
- 40 Strimling BS. Partial amputation of glans penis during Mogen clamp circumcision. *Pediatrics* 1996;97:906–7.
- 41 Gluckman GR, Stoller ML, Jacobs MM, et al. Newborn penile glans amputation during circumcision and successful reattachment. *J Urol* 1995;153:778–9.
- 42 Hanash KA. Plastic reconstruction of partially amputated penis at circumcision. *Urology* 1981;18:291–3.
- 43 Siegel-Itzkovich J. Baby's penis reattached after botched circumcision. *Br Med J* 2000;321:529.
- 44 Lerner BL. Amputation of the penis as a complication of circumcision. *Med Record Ann* 1952;46:229–31.
- 45 Menahem S. Complications arising from ritual circumcision: pathogenesis and possible prevention. *Isr J Med Sci* 1981;17:45–8.
- 46 Neulander E, Walfisch S, Kaneti J. Amputation of distal penile glans during neonatal ritual circumcision—a rare complication. *Br J Urol* 1996;77:924–5.
- 47 Izzidien AY. Successful replantation of a traumatically amputated penis in a neonate. *J Pediatr Surg* 1981;16:202–3.
- 48 Shenfeld OZ, Ad-El D. Penile reconstruction after complete glans amputation during ritual circumcision. *Harefuah* 2000;139:352–4, 407.
- 49 Ameh EA, Sabo SY, Muhammad I. Amputation of the penis during traditional circumcision. *Trop Doct* 1997;27:117.
- 50 Crowley IP, Kesner KM. Ritual circumcision (Umkhwetha) amongst the Xhosa of the Ciskei. *Br J Urol* 1990;66:318–21.
- 51 Yilmaz AF, Sarikaya S, Yildiz S, et al. Rare complication of circumcision: penile amputation and reattachment. *Eur Urol* 1993;23:423–4.
- 52 Coskunfirat OK, Sayilkan S, Velidedeoglu H. Glans and penile skin amputation as a complication of circumcision. *Ann Plast Surg* 1999;43:457.
- 53 Hashem FK, Ahmed S, al-Malaq AA, et al. Successful replantation of penile amputation (post-circumcision) complicated by prolonged ischaemia. *Br J Plast Surg* 1999;52:308–10.
- 54 Audry G, Buis J, Vazquez MP, et al. Amputation of penis after circumcision—penoplasty using expandable prosthesis. *Eur J Pediatr Surg* 1994;4:44–5.
- 55 Aydin A, Alp A, Tuncer S. Penile amputation due to circumcision and replantation. *Plastic Reconstr Surg* 2002;110:707–8.
- 56 Silfen R, Hudson DA, McCulley S. Penile lengthening for traumatic penile amputation due to ritual circumcision: a case report. *Ann Plast Surg* 2000;44:311–16.
- 57 Shulman J, Ben-Hur N, Neuman Z. Surgical complications of circumcision. *Am J Dis Child* 1964;107:149–54.
- 58 Çetinkaya M, Saglam HS, Beyribey S. Two serious complications of circumcision. Case report. *Scand J Urol Nephrol* 1993;27:121–2.
- 59 Magoha GA. Circumcision in various Nigerian and Kenyan hospitals. *East Afr Med J* 1999;76:583–6.
- 60 Özkan S, Gürpınar T. A serious circumcision complication: penile shaft amputation and a new reattachment technique with a successful outcome. *J Urol* 1997;158:1946–7.
- 61 Bozkurt MF, Uğur Ö. Assessment of penile bone graft viability by bone scintigraphy: a case report. *Ann Nucl Med* 2000;14:377–8.
- 62 Beauchamp TL, Childress JF. *Principles of biomedical ethics*. 6th edn. New York: Oxford University Press, 2001. Especially pp 224–7.
- 63 Sorrells ML, Snyder JL, Reiss MD, et al. Fine-touch pressure thresholds in the adult penis. *BJU Int* 2007;99:864–9.
- 64 Halata Z, Munger BL. The neuroanatomical basis for the protopathic sensibility of the human glans penis. *Brain Res* 1986;371:205–30.
- 65 Wawer MJ, Makumbi F, Kigozi G, et al. Circumcision in HIV-infected men and its effect on HIV transmission to female partners in Rakai, Uganda: a randomised controlled trial. *Lancet* 2009;374:229–37.
- 66 Daling JR, Madeleine MM, Johnson LG, et al. Penile cancer: importance of circumcision, human papillomavirus and smoking in situ and invasive disease. *Int J Cancer* 2005;116:606–16.
- 67 Persad R, Sharma S, McTavish J, et al. Clinical presentation and pathophysiology of meatal stenosis following circumcision. *Br J Urol* 1995;75:91–3.
- 68 Arnold SJ, Ginsburg A, Berg R. Radiographic criteria of meatal and distal urethral stenosis. Pre- and postoperative study. *Urology* 1973;1:397–404.
- 69 Griffiths DM, Atwell JD, Freeman NV. A prospective survey of the indications and morbidity of circumcision in children. *Eur Urol* 1985;11:184–7.
- 70 Stenram A, Malmfors G, Okmian L. Circumcision for phimosis—indications and results. *Acta Paediatr Scand* 1986;75:321–3.
- 71 Allen JS, Summers JL. Meatal stenosis in children. *J Urol* 1974;112:526–7.
- 72 Cherif F, Fazaa B, Mokhtar I, et al. Épidermolyse bulleuses jonctionnelles: faut-il permettre la circoncision? [Junctional epidermolysis bullosa: should circumcision be allowed?] *Ann Dermatol Venerol* 1998;125:724–6.
- 73 Berry CD Jr, Cross RR Jr. Urethral meatal caliber in circumcised and uncircumcised males. *Am J Dis Child* 1956;92:621.
- 74 Cartwright PC, Snow BW, McNees DC. Urethral meatotomy in the office using topical EMLA cream for anesthesia. *J Urol* 1996;156:857–8; discussion 858–9.

- 75 Steg A, Allouch G. Stenose du meat et circoncision. *J Urol Nephrol Paris* 1979;85:727–9.
- 76 Litvak AS, Morris JA Jr, McRoberts JW. Normal size of the urethral meatus in boys. *J Urol* 1976;115:736–7.
- 77 Frank JD, Pocock RD, Stower MJ. Urethral strictures in childhood. *Br J Urol* 1988;62:590–2.
- 78 Docimo SG, Silver RI, Gonzalez R, et al. Idiopathic anterior urethritis in prepubertal and pubertal boys: pathology and clues to etiology. *Urology* 1998;51:99–102.
- 79 Upadhyay V, Hammodat HM, Pease PW. Post circumcision meatal stenosis: 12 years' experience. *N Z Med J* 1998;111:57–8.
- 80 Parkash S, Gajendran V. Meatoplasty for gross urethral stenosis: a technique of repair and a review of 32 cases. *Br J Plast Surg* 1984;37:117–20.
- 81 Mowad JJ, Michaels MM. Meatal stenosis associated with vesicoureteral reflux in boys: management of 25 cases. *J Urol* 1974;111:100–1.
- 82 Palaniswamy R, Bhandari M. Point of focus: poor genital hygiene and terminal urethral strictures. *Trop Geogr Med* 1983;35:139–43.
- 83 Bhandari M, Palaniswamy R, Achrekar KL, et al. Strictures of the penile urethra. *Br J Urol* 1983;55:235–8.
- 84 Hoebeke P, Depauw P, Van Laecke E, et al. The use of Emla cream as anaesthetic for minor urological surgery in children. *Acta Urol Belg* 1997;65:25–8.
- 85 Wright JE. Non-therapeutic circumcision. *Med J Aust* 1967;1:1083–6.
- 86 Viville C, Weltzer J. Les retrecissements iatrogenes de l'urethre (R.I.U.) masculin. A propos de 50 observations [Iatrogenic stenosis of the male urethra. 50 cases]. *J Urol (Paris)* 1981;87:413–18.
- 87 Van Howe RS. Variability in penile appearance and penile findings: a prospective study. *Br J Urol* 1997;80:776–82.
- 88 Van Howe RS. Incidence of meatal stenosis following neonatal circumcision in a primary care setting. *Clin Pediatr (Phila)* 2006;45:49–54.
- 89 Joudi M, Fathi M, Hiradfar M. Incidence of asymptomatic meatal stenosis in children following neonatal circumcision. *J Pediatr Urol* 2011;7:526–8.
- 90 Schoen EJ, Colby CJ, To TT. Cost analysis of neonatal circumcision a large health maintenance organization. *J Urol* 2006;175:1111–15.
- 91 McAllister RG, Travis JW, Bollinger D, et al. Cost to circumcise Africa. *Int J Men Health* 2008;7:307–16.
- 92 Van Howe RS. A cost-utility analysis of neonatal circumcision. *Med Decis Making* 2004;24:584–601.
- 93 Chessare JB. Circumcision: is the risk of urinary tract infection really the pivotal issue? *Clin Pediatr Phila* 1992;31:100–4.
- 94 Lawler FH, Bissoni RS, Holtgrave DR. Circumcision: a decision analysis of its medical value. *Fam Med* 1991;23:587–93.
- 95 Ganiats TG, Humphrey JB, Taras HL, et al. Routine neonatal circumcision: a cost-utility analysis. *Med Decis Making* 1991;11:282–93.
- 96 Giannetti MR. Circumcision and the American Academy of Pediatrics: should scientific misconduct result in trade association liability? *Iowa L Rev* 2000;85:1507.
- 97 American Academy of Pediatrics Task Force on Circumcision. Circumcision policy statement. *Pediatrics* 1999;103:686–93.
- 98 Auvert B, Taljaard D, Lagarde E, et al. Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265 trial. *PLoS Medicine* 2005;2:1112–22.
- 99 Bailey RC, Moses S, Parker CB, et al. Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial. *Lancet* 2007;369:643–56.
- 100 Gray RH, Kigozi G, Serwadda D, et al. Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. *Lancet* 2007;369:657–66.
- 101 Rabin RC. Benefits of circumcision are said to outweigh risks. *NY Times* 27 August 2012:A3.
- 102 Van Howe RS, Storms MR. How the circumcision solution in Africa will increase HIV infections. *J Publ Health Afr* 2011;2:e4.
- 103 Boyle GJ, Hill G. Sub-Saharan African randomised clinical trials into male circumcision and HIV transmission: methodological, ethical and legal concerns. *J Law Med* 2011;19:316–34.
- 104 Brewer DD, Potterat JJ, Brody S. Male circumcision and HIV prevention. *Lancet* 2007;369:1597.
- 105 Denniston GC, Hill G. Male circumcision and HIV prevention. *Lancet* 2007;369:1598.
- 106 Green LW, Travis JW, McAllister RG, et al. Male circumcision and HIV prevention insufficient evidence and neglected external validity. *Am J Prev Health* 2010;39:479–82.
- 107 Green LW, McAllister RG, Peterson KW, et al. Male circumcision is not the HIV 'vaccine' we have been waiting for! *Future HIV Ther* 2008;2:193–9.
- 108 Gisselquist D. *Points to consider: responses to HIV/AIDS in Africa, Asia and Caribbean*. London: Adonis & Abbey Publishers Ltd, 2008.
- 109 Gisselquist D, Potterat JJ, St. Lawrence JS, et al. How to contain generalized HIV epidemics? A plea for better evidence to displace speculation. *Int J STD AIDS* 2009;20:443–6.
- 110 Thomas AG, Bakhireva LN, Brodline SK, et al. Prevalence of circumcision and its association with HIV and sexually transmitted infections in a male US Navy population. Naval Health Research Center. Report No. 04-10:2004.
- 111 Rodriguez-Diaz CE, Clatts MC, Jovet-Toledo GG, et al. More than foreskin: circumcision status, history of HIV/STI, and sexual risk in a clinic-based sample of men in Puerto Rico. *J Sex Med* 2012;9:2933–7.
- 112 Mor Z, Kent CK, Kohn RP, et al. Declining rates in male circumcision amidst increasing evidence of its public health benefit. *PLoS ONE* 2007;2:e861.
- 113 Laumann EO, Masi CM, Zuckerman EW. Circumcision in the United States: prevalence, prophylactic effects, and sexual practice. *JAMA* 1997;277:1052–7.
- 114 Warner L, Ghanem KG, Newman DR, et al. Male circumcision and risk of HIV infection among heterosexual African American men attending Baltimore sexually transmitted disease clinics. *J Infect Dis* 2009;199:59–65.
- 115 Chiasson MA, Stoneburner RL, Hildebrandt DS, et al. Heterosexual transmission of HIV-1 associated with the use of smokable freebase cocaine (crack). *AIDS* 1991;5:1121–6.
- 116 Storms MR. Male circumcision for the prevention of HSV-2 and HPV infections. *N Engl J Med* 2009;361:307.
- 117 Van Howe RS, Storms MR. Circumcision to prevent HPV infection. *Lancet Oncol* 2009;10:746–7.
- 118 Van Howe RS. Sexually transmitted infections and male circumcision: a systematic review and meta-analysis. *ISRN Urol*; in press.
- 119 Weaver BA, Feng Q, Holmes KK, et al. Evaluation of genital sites and sampling techniques for detection of human papillomavirus DNA in men. *J Infect Dis* 2004;189:677–85.
- 120 VanBuskirk K, Winer RL, Hughes JP, et al. Circumcision and the acquisition of human papillomavirus infection in young men. *Sex Transm Dis* 2011;38:1074–81.
- 121 Van Howe RS. Human papillomavirus and circumcision: a meta-analysis. *J Infect* 2007;54:490–6.
- 122 Dickson NP, Ryding J, van Roode T, et al. Male circumcision and serologically determined human papillomavirus infection in a birth cohort. *Cancer Epidemiol Biomarkers Prev* 2009;18:177–83.
- 123 Lu B, Wu Y, Nielson CM, et al. Factors associated with acquisition and clearance of human papillomavirus infection in a cohort of US men: a prospective study. *J Infect Dis* 2009;199:362–71.
- 124 Partridge JM, Hughes JP, Feng Q, et al. Genital human papillomavirus infection in men: incidence and risk factors in a cohort of university students. *J Infect Dis* 2007;196:1128–36.
- 125 Giuliano AR, Lazcano E, Villa LL, et al. Circumcision and sexual behavior: factors independently associated with human papillomavirus detection among men in the HIM study. *Int J Cancer* 2009;124:1251–7.
- 126 Nielson CM, Schiaffino MK, Dunne EF, et al. Associations between male anogenital human papillomavirus infection and circumcision by anatomic site sampled and lifetime number of female sex partners. *J Infect Dis* 2009;199:7–13.
- 127 Ogilvie GS, Taylor DL, Achen M, et al. Self-collection of genital human papillomavirus specimens in heterosexual men. *Sex Transm Infect* 2009;85:221–5.
- 128 Shin HR, Franceschi S, Vaccarella S, et al. Prevalence and determinants of genital infection with papillomavirus, in female and male university students in Busan, South Korea. *J Infect Dis* 2004;190:468–76.
- 129 Vardas E, Giuliano AR, Goldstone S, et al. External genital human papillomavirus prevalence and associated factors among heterosexual men on 5 continents. *J Infect Dis* 2011;203:58–65.
- 130 Weiss HA, Thomas SL, Munabi SK, et al. Male circumcision and risk of syphilis, chancroid, and genital herpes: a systematic review and meta-analysis. *Sex Transm Infect* 2006;82:101–10.
- 131 Tobian AAR, Serwadda D, Quinn TC, et al. Male circumcision for the prevention of HSV-2 and HPV infections and syphilis. *N Engl J Med* 2009;360:1298–309.
- 132 Mehta SD, Moses S, Parker CB, et al. Circumcision status and incident HSV-2 infection, genital ulcer disease, and HIV infection. *AIDS* 2012;26:1141–9.
- 133 Wingo PA, Tong T, Bolden S. Cancer statistics, 1995. *CA Cancer J Clin* 1995;45:8–30.
- 134 Parker SL, Tong T, Bolden S, et al. Cancer statistics, 1997. *CA Cancer J Clin* 1997;47:5–27.
- 135 Iversen T, Tretli S, Johansen A, et al. Squamous cell carcinoma of the penis and of the cervix, vulva and vagina in spouses: is there any relationship? An epidemiological study from Norway, 1960–92. *Br J Cancer* 1997;76:658–60.
- 136 Frisch M, Friis S, Kjaer SK, et al. Falling incidence of penis cancer in an uncircumcised population (Denmark 1943–90). *Br Med J* 1995;311:1471.
- 137 Maiche AG. Epidemiological aspects of cancer of the penis in Finland. *Eur J Cancer Prev* 1992;1:153–8.
- 138 Swafford TD. Circumcision and the risk of cancer of the penis. *Am J Dis Child* 1985;139:112.
- 139 To T, Agha M, Dick PT, et al. Cohort study on circumcision of newborn boys and subsequent risk of urinary-tract infection. *Lancet* 1998;352:1813–16.
- 140 American Academy of Pediatrics Committee on Bioethics. Ritual genital cutting of female minors. *Pediatrics* 2010;125:1088–93. <http://pediatrics.aappublications.org/content/125/5/1088.abstract> (accessed 5 Feb 2013).

- 141 American Academy of Pediatrics. *American academy of pediatrics withdraws policy statement on female genital cutting [press release]*. Elk Grove Village, IL: American Academy of Pediatrics, 2010. <http://www.aap.org/advocacy/releases/fgc-may27-2010.htm> (accessed 19 Dec 2012).
- 142 American Academy of Pediatrics Committee on Bioethics. Ritual genital cutting of female minors. *Pediatrics* 2010;126:191.
- 143 American Medical Association Council on Scientific Affairs. *Report 10: Neonatal circumcision*. Chicago: American Medical Association, 1999.
- 144 Royal Australasian College of Physicians. *Circumcision of male infants*. Sydney: Royal Australasian College of Physicians, 2010.
- 145 Committee on Medical Ethics. *The law & ethics of male circumcision—guidance for doctors*. London: British Medical Association, 2006.
- 146 Canadian Paediatric Society. Neonatal circumcision revisited. *CMAJ* 1996;154:769–80. <http://www.cps.ca/en/documents/position/circumcision> (accessed 19 Dec 2012).
- 147 Bollinger D. Lost boys: An estimate of U.S. circumcision-related infant deaths. *THYMOS: J Boyhood Stud* 2010;4:78–90.
- 148 Smith M, Saunders R, Stuckhardt L. *Best care at lower cost: the path to continuously learning health care in America*. Washington, DC: National Academy of Sciences, 2012.