

# Male Circumcision

## Risk-benefit analysis for newborns

Evidence-based policy statements in the USA<sup>1,2</sup> and Australia<sup>3</sup> support circumcision, which is best done in the neonatal period.<sup>4</sup> However, a thorough risk-benefit analysis is required.

### Aim

To determine the overall medical benefit and risk of newborn male circumcision.

### Methods

PubMed searches by "circumcision" and relevant keywords.

### Results

Table 1 shows increase in risk of various medical conditions conferred by lack of circumcision. Over their lifetime one in two uncircumcised males will suffer a condition (some fatal) caused by retention of the foreskin.<sup>5</sup> A meta-analysis shows substantial protection against urinary tract infections; these affect one in three uncircumcised males over their lifetime.<sup>6</sup> The degree of protection is tenfold in infancy, when risk of kidney damage is greatest. Circumcision protects against phimosis, paraphimosis, balanitis, sexually transmitted infections (e.g., oncogenic *human papillomavirus* [HPV] [an epidemic], herpes simplex virus type 2 [HSV-2], *Trichomonas*, mycoplasma, chancroid, syphilis, and human immunodeficiency virus [HIV]), thrush, inferior hygiene, penile cancer (affects 1 in 1,000 uncircumcised males over the lifetime), and prostate cancer.<sup>1,2,5</sup>

Circumcision protects female partners from cervical cancer, bacterial vaginosis, and sexually transmitted infections (Table 2).<sup>1-5</sup>

The complication rate in newborns is 0.5% (Table 3). Virtually all complications are minor, and immediately and easily treatable with complete resolution.<sup>1,2,5,7</sup> The benefits of circumcision exceed risks by 100 to 1.<sup>5</sup> Newborn male circumcision is highly cost-effective.<sup>8</sup> There are no long-term adverse effects on sexual function, sensitivity, or pleasure;<sup>9</sup> if anything sex is better. Legal and ethical considerations also support newborn male circumcision.<sup>10</sup>

### Conclusions

**The strong net benefit and low risk of newborn male circumcision makes it comparable to childhood vaccination.**

**Circumcision of baby boys should be offered routinely.**

**Access should be facilitated and affordability assured for this evidence-based public health imperative.**

**Table 1.** Risks avoided with newborn male circumcision

Condition	Increase in risk <sup>a</sup>	Percent affected <sup>b</sup>
Phimosis	100 <sup>c</sup>	10
Penile cancer (lifetime)	>20 <sup>d</sup>	0.1
Pyelonephritis (infants)	10 <sup>6</sup>	0.6
– with concurrent bacteremia	20 <sup>6</sup>	0.1
– hypertension in early adulthood	–	0.1
– end-stage renal disease in early adult	–	0.06
Urinary tract infections: age 0–1 year	9.9 <sup>6</sup>	1.3
Urinary tract infections: age 1–16 years	6.6 <sup>6</sup>	2.7
Urinary tract infections: age >16 years	3.4 <sup>6</sup>	28
Urinary tract infections: lifetime	3.6 <sup>6</sup>	32
Balanitis	3.1	10
High-risk HPV infection: meta-analysis	2.7	10
High-risk HPV infection: RCT	1.5	6
Candidiasis (thrush)	2.5	10
HIV (acquired heterosexually)	2.4	0.3
Genital ulcer disease	2.0	2
Prostate cancer	1.2–2.0	2–10
Syphilis	1.9	Low
<i>Trichomonas vaginalis</i>	1.9	0.5
<i>Mycoplasma genitalium</i>	1.8	1
Herpes simplex virus type 2 (HSV-2)	1.4	4
HSV-2: meta-analysis	1.1	1
Chancroid	0.1–1.1	Low

<sup>a</sup>See reference 5 for hazards not otherwise credited. <sup>b</sup>Percentage of uncircumcised males affected. <sup>c</sup>Phimosis is 100 times more frequent in uncircumcised males. <sup>d</sup>Penile cancer is greater than 20 times more frequent in uncircumcised males.

**Table 1 shows that the risk to an uncircumcised male of developing a condition requiring medical attention over their lifetime is about one in two.**

**Table 2.** Risks avoided by female partners

Condition	Increase in risk <sup>a</sup>
<i>Chlamydia trachomatis</i>	5.6 <sup>b</sup>
Cervical cancer	2.4
HSV-2	2.2
<i>Trichomonas vaginalis</i>	1.9
Bacterial vaginosis	1.7

<sup>a</sup>See ref. 5. <sup>b</sup>*Chlamydia trachomatis* is 5.6 times more frequent in female partners of uncircumcised males.

### References

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(See also <http://www.circinfo.net>)

**Table 3.** Risks of circumcision

Condition	Percent affected <sup>1,2,5,7</sup>
Infection, local	0.2
Excessive bleeding	0.1
Need for repeat surgery	0.1
Infection, systemic	0.02
Loss of penis	0.0001
Death	0.000001
Loss of penile sensitivity	0

**Table 3 shows that the risk of an easily treatable<sup>7</sup> condition is approximately 1 in 200.**

<sup>7</sup>Risk of a serious complication is 1 in 5000.

**Therefore,  
Benefits exceed  
Risks by 100 to 1**