Canadian Urological Association Guideline on the Care of the Normal Foreskin and Neonatal Circumcision in Canadian Infants

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## Disclosures

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Incidence of circumcision in neonatal boys is decreasing in Canada (32% newborn boys circumcised in 2006–07)

Parents face a conflict of decision because the AAP guideline suggested that the “benefits of a neonatal circumcision outweigh the risks” (Male circumcision. Task Force on Circumcision. Pediatrics 2012;130:e756-e85)

This recommendation is primarily based on the protective effect of adult circumcision against HIV infection demonstrated in three large African trials.

Currently, in Canada, provincial healthcare plans do not cover neonatal circumcision and the parents have to pay out of pocket for a neonatal circumcision.
Pertinent questions

• What is the optimal management of the normal foreskin in early childhood?
• Is universal neonatal circumcision (NC) beneficial for Canadian male babies in:
  ▪ Decreasing risk of urinary tract infections (UTIs)?
  ▪ Decreasing the risk of HIV infection?
  ▪ Decreasing the risk of other sexually transmitted infections (STIs) including HPV infections?
  ▪ Decreasing the risk of penile cancer?
Pertinent questions cont’d

• Does NC affect sexual function?
• What are the contraindications of NC?
• What are the risks of NC?
• Should we recommend universal neonatal circumcision for male Canadian babies?
This guideline is designed for:

- Family doctors
- Pediatricians
- Physicians performing neonatal circumcisions
- Community urologists
- Pediatric urologists
Methods

- Systematic review of literature using mesh words described in the guideline were conducted between January 2000 and March 2013
- 2674 articles were reviewed and 233 studies included in this guideline
- Oxford grading used to stratify quality of studies and GRADE methodology used to evaluate quality of evidence
- Four pediatric urologists independently reviewed the literature and guided recommendations
Management of the normal foreskin

• The normal foreskin: Does not retract for the first few years of life — this is defined as physiological phimosis. No intervention or pediatric urology referral is required in this time period
• Ballooning of the foreskin during voiding or a tight foreskin in the first 4–5 years of life is not an indication for referral unless there is a history of recurrent foreskin infections (balanoposthitis) or UTIs
• The normal process of prepucial retraction should be allowed to proceed without intervention; this happens with reflex erections and gradual separation of the physiological adhesions between the foreskin and glans penis
• Parental reassurance and regular examination of the foreskin is required during this period
In a older child with a tight foreskin, topical steroid medications with gentle retraction is highly successful (60–80% success rate), without side effects, in compliant children and parents.

The current recommendation involves using a low-dose steroid topical medication (betamethasone or triamcinolone 0.5%) BID with gentle retraction of the foreskin over a 6–8-week period, which can be repeated if needed.

Circumcision is indicated for true phimosis associated with scarring of the prepuce and lichen sclerosis of the foreskin.
Circumcision and UTIs

• Circumcision decreases the risk of UTIs in infancy (*Level 2a*). The degree of risk reduction is dependent on whether males have a normal or abnormal urinary tract
  - **Normal urinary tract:** Uncircumcised males have a higher 32% risk of UTI over the lifetime compared to a 9% risk in circumcised males
    - The overall risk of UTI in male infants is low (NNT to prevent 1 UTI= 111 NC neonates)
    - Benefits of NC to prevent UTIs beyond infancy is not proven
  - **Abnormal urinary tract with hydronephrosis/vesicoureteric reflux/posterior urethral valves:**
    - NC has a larger benefit in boys with posterior urethral valves and those with an obstructed megaureter (*Level 3–4, Grade C*)
Circumcision and HIV

- Circumcision decreases the risk of HIV transmission from female to male partners (*Level 1A, Grade A*). The protective affect demonstrated consistently in three African trials and several meta-analyses is a RR of 0.42–0.49 in circumcised males.
- This effect size may not be applicable to Canada given the low HIV incidence/prevalence, differing modes of HIV transmission, and variable socioeconomic and healthcare facilities.
- Male to male HIV transmission: Circumcision does not provide protection for men who have sex with men (*Level 2a*).
- Male to female HIV transmission: Circumcision does not provide protection for female partners of infected male partners (*Level 2a–b*).
Circumcision and HPV

- HPV prevalence in men: Decrease in HPV prevalence in the glans and coronal sulcus for some high-risk HPV serotypes after adult male circumcision (*Level 1b*)
- HPV clearance in men: Lack of convincing evidence that adult circumcision increases HPV clearance (*Level 1b–2b*)
- HPV incidence in men: No convincing evidence that male circumcision lowers HPV incidence in HIV positive or negative men (*Level 1b–2b*)
- HPV in female partners: Male adult circumcision possibly lowers HPV prevalence and incidence in female partners (*Level 1b–2b*)
- Effects may not persist after NC into adulthood
- HPV vaccination is a viable alternative to NC
Circumcision and other STIs

- Non-ulcerative STIs: No significant evidence to support adult male circumcision decreases risk of non-ulcerative STIs (*Level 2a–2b*). Possible protective effect on preventing acquisition of *Trichomonas* infections (*Level 2a–2b, Grade B*)
- Weak evidence of partial protective effect of adult male circumcision against HSV-2 infections (*Level 2a–2b*)
- No definite evidence to support protective effect of adult male circumcision in acquisition of ulcerative STIs for female partners (*Level 2–4, Grade C*)
Circumcision and penile cancer

- Circumcision decreases the risk of penile cancer (*Level 2–3*)
- Phimosis is a significant risk factor for penile cancer. Treatment of phimosis, maintenance of foreskin hygiene in uncircumcised males, and safe sexual practices will decrease risk of penile cancer
- Given the relatively low risk of invasive penile cancer in males without phimosis and the effectiveness of other preventive strategies like HPV vaccination, condom usage and smoking cessation programs, universal NC cannot be justified as a preventive strategy for penile cancer (*Grade B*)
Circumcision and sexual function

• There is no convincing evidence in the literature that circumcision affects sexual function in terms of penile/glans sensation and ejaculatory latency time (*Level 3–4, Grade C*)

• There is paucity of data on how NC impacts sexual function and penile sensation
Contraindications of neonatal circumcision

- Hypospadias
- Epispadias
- Concealed penis
- Peno-scrotal webbing
- Bleeding disorder, medically unstable neonate
- Congenital penile curvature
Complications for NC are underreported; the overall risk varies on the thoroughness of reporting and the duration of followup and ranges from 0.6–2%

- Post-circumcision bleeding is the most common complication of NC
- Though the majority of the complications for NC are minor, many complications require surgical intervention
- Risks of NC are operator-dependent and there is a lack of a defined and universal training model for physicians who intend to perform NC
Other considerations impacting guidelines recommendations

• Lack of external validity of data across countries with varying socioeconomic conditions, varying access to healthcare, and variable prevention strategies affect guideline recommendations
• HIV transmission in Sub-Saharan Africa primarily though heterosexual contact. In Canada, men who have sex with men and IV drug users account for more HIV transmission than heterosexual individuals
• Effective sexual education and ABCEs of prevention can diminish benefits of NC in preventing STIs
• Implementation of HPV vaccination can be an effective alternative to NC
### Summary of the benefits of circumcision

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<tr>
<th>Benefit</th>
<th>Direction of evidence</th>
<th>Effect size</th>
<th>Level of evidence</th>
<th>GRADE quality</th>
<th>GRADE strength</th>
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<tr>
<td>Risk of UTI</td>
<td>Positive</td>
<td>0.07–0.023</td>
<td>Level 2</td>
<td>Low-quality</td>
<td>Weak</td>
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<tr>
<td>Risk of HIV</td>
<td>Positive</td>
<td>0.34–062</td>
<td>Level 1</td>
<td>High-quality</td>
<td>Strong</td>
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<tr>
<td>Risk of HPV prevalence</td>
<td>Positive</td>
<td>0.57–0.77</td>
<td>Level 1</td>
<td>Moderate-quality</td>
<td>Weak</td>
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<tr>
<td>Risk of HPV incidence</td>
<td>Unclear</td>
<td>NS</td>
<td>Level 2</td>
<td>Low-quality</td>
<td>Weak</td>
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<tr>
<td>Risk of HSV</td>
<td>Positive</td>
<td>0.36–0.91</td>
<td>Level 2</td>
<td>Moderate-quality</td>
<td>Weak</td>
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<tr>
<td>Risk of penile cancer</td>
<td>Positive</td>
<td>0.13–0.83</td>
<td>Level 2</td>
<td>Low-quality</td>
<td>Weak</td>
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Conclusions

- Universal NC is not recommended for Canadian male infants
- An individualized approach enlisting potential benefits and complications of NC should be discussed with parents contemplating NC for their male newborn child
- Adequate analgesia/anesthesia should be employed for all NC
- The normal male foreskin requires minimal physician intervention and pediatric urology referral should be reserved for older children (>5 years of age) and those with a history of recurrent UTIs or balanitis