

## Newborn Guideline 11

# EYE CARE AND PREVENTION OF OPHTHALMIA NEONATORUM

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### **INTRODUCTION**

Ophthalmia neonatorum presents as an inflammation of the conjunctiva in an infant younger than 30 days of age.<sup>1</sup> Most ophthalmia infections in the neonatal period are acquired during vaginal delivery and reflect the sexually transmitted diseases prevalent in the community.<sup>2</sup> In 1881 Crede recommended eye prophylaxis with topical 1% silver nitrate for newborns to prevent gonorrheal ophthalmia.<sup>3</sup> Subsequently, this recommendation was widely practiced for almost a century.

Although *Chlamydia trachomatis* is currently the most common organism causing ophthalmia neonatorum in North America, complications from gonococcal ophthalmia are more severe, appear more rapidly, and are more likely to cause blindness. The transmission rate for gonorrhea from an infected mother to her newborn is 30-50%.<sup>4,5,6</sup> Prenatal screening and treatment of maternal sexually transmitted diseases and newborn eye prophylaxis has had a major effect on the prevention of neonatal gonococcal ophthalmia.<sup>7,8</sup>

In British Columbia today, the Health Act Communicable Disease Regulation requires that “a physician, or other qualified person, assisting at the birth of a baby must within one hour of the birth treat the eyes of the baby with a prophylactic solution of 1% tetracycline, 0.5% erythromycin, or 1% silver nitrate dispensed in single use containers.”<sup>9</sup>

### **CAUSES**<sup>10</sup>

- Chlamydial
  - *Trachomatis*
- Bacterial
  - *Neisseria gonorrhoeae* (most important bacteria by its potential to damage vision)
  - *Streptococcus pneumoniae*
  - *Haemophilus influenzae*
  - Viridans streptococci
  - *Enterobacter* species
  - *Escherichia coli*
  - *Klebsiella* species
  - *Pseudomonas* species (rare)
  - *Staphylococcus aureus*

### **RISK FACTORS**<sup>11</sup>

- Premature rupture of membranes
- Documented or suspected sexually transmitted disease
- Local eye injury during delivery

## ***EFFICACY OF PROPHYLACTIC AGENTS***

Three prophylactic agents can be utilized in the newborn to prevent ophthalmia neonatorum: erythromycin, tetracycline, or silver nitrate. Several studies have looked at the efficacy of each agent.<sup>12-16</sup> Most studies have found that all three agents effectively prevent gonococcal conjunctivitis, but results are conflicting as to whether the agents are effective in preventing chlamydial disease. One of the studies found that the use of povidone-iodine as an eye prophylactic was more effective in preventing infectious conjunctivitis (including cases caused by chlamydia) than were the other three agents.<sup>17</sup> More research on the use of povidone-iodine is needed before conclusive evidence can be presented.

## ***EYE PROPHYLAXIS ADMINISTRATION***

1. Under the British Columbia Health Act Communicable Disease Regulation (1995), a physician, midwife, or other qualified person assisting at the birth of a baby must within one hour of the birth treat the eyes of the baby with a prophylactic solution of 1% tetracycline hydrochloride, 0.5% erythromycin or 1% silver nitrate dispensed in single use containers.<sup>18,19,20</sup>

The Family-Centred Maternity and Newborn Care National Guidelines state that treatment may be delayed for up to 2 hours after birth to enable parent-infant contact and initial stabilization of the baby.<sup>21</sup> Neither the guideline or the Act provide any reference for the time interval recommendation. Note that the Family-Centred Maternity and Newborn Care National Guidelines do not take precedence over the B.C. Health Act Communicable Disease Regulation, and in B.C. prophylactic treatment must be administered within one hour of birth. Policies should be developed which facilitate both bonding and compliance.

2. For those very premature babies whose lids are fused at the time of birth, apply the prophylactic agent without separating the eyelids.
3. When 1% tetracycline hydrochloride or 0.5% erythromycin is used, a line of ointment 1 to 2 cm long is placed in each lower conjunctival sac, if possible covering the whole lower conjunctival area. Care is needed to prevent injury to the eye or the eyelid from the tip of the tube. Gently massage the closed eyelids to help spread the solution to all areas of the conjunctiva.<sup>23</sup>
4. When 1% silver nitrate is used, two drops of solution are placed in each lower conjunctival sac, a single ampoule being used for each eye. Gently massage the closed eyelids to help spread the solution to all areas of the conjunctiva. Advise the parents that transient chemical conjunctivitis may occur.<sup>22</sup>
5. After 1 minute any excess ointment or drops should be gently wiped from the eyelids and surrounding skin with sterile cotton.<sup>24,25</sup>
6. The eyes should not be irrigated after instillation of a prophylactic agent.<sup>26,27,28</sup>

### ***REFUSAL OF EYE PROPYLAXIS TREATMENT***

The parents may refuse eye prophylaxis. Should both parents, or if the father is not available, the mother refuse eye prophylaxis, a written statement declining the prophylaxis is required<sup>29</sup>.

The physician, midwife or other qualified person, assisting at the birth must inform the parents or mother, of the following before accepting a written statement:<sup>30</sup>

- a) why the treatment is recommended,
- b) what advantages should be anticipated from the treatment,
- c) what problems may arise if the treatment is not given, and
- d) what side effects may arise from the treatment

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