

## ACP Brief – Fall 2006 prioritization

### Fluoroquinolones for Acute Conjunctivitis

#### Background

- This topic proposal was submitted by BC PharmaCare during the Fall 2006 call for new HTA topics. They are currently covering some ophthalmic fluoroquinolones as Limited Coverage benefits through Special Authority. The last two ophthalmic fluoroquinolones [moxifloxacin (Vigamox®) and gatifloxacin (Zymar™)] are however not covered.
- BC Pharmacare is planning to develop a policy on the coverage of ophthalmic fluoroquinolones in bacterial conjunctivitis.
- Research questions would include a review of comparative effectiveness of ophthalmic fluoroquinolones (including versus alternative ophthalmic antibiotics) as well as a cost-effectiveness evaluation.

#### Disease Burden

- Acute conjunctivitis is a common condition affecting people of all ages, and has considerable social and economic consequences due to disruption of patient's usual activities, frequently leading to absenteeism from school and work.<sup>1</sup> Highly contagious bacterial and viral conjunctivitis are the most common conditions.<sup>2</sup>
- While there is no data showing annual incidence rates in Canada, annual incidence rate is between 1.5 to 2% in the developed world, and about 50% of infectious conjunctivitis are bacterial.<sup>3</sup> With total of 32 million Canadians this translates to about 640,000 cases of conjunctivitis, half of which is bacterial.
- Because most general practitioners are unable to discriminate between a bacterial and a viral cause, in practice, more than 80% of patients receive antibiotics.<sup>4</sup>

#### Alternatives

- The mainstay treatment for bacterial conjunctivitis is based on ophthalmic antibiotic solutions which include sodium sulfacetamide, gentamicin, tobramycin, polymyxin B combination, and fluoroquinolones (moxifloxacin, ofloxacin, ciprofloxacin, levofloxacin, and gatifloxacin).<sup>1</sup>
- Standard duration of treatment for bacterial conjunctivitis is 5 to 7 days.<sup>2</sup>
- Fluoroquinolones have been used mostly as second-line agents in routine bacterial conjunctivitis.<sup>4,5</sup> The use of second generation of fluoroquinolones (ciprofloxacin and levofloxacin) has been associated with development of bacterial resistance.<sup>5-7</sup>

#### Clinical Impact

- Clinical studies comparing fluoroquinolones with other ophthalmic antibiotics showed a slight superiority of fluoroquinolones in terms of success rates; over 90% for fluoroquinolones and over 86% for other antibiotics<sup>5,14-17</sup>
- In vitro data indicate the newest generation fluoroquinolones (moxifloxacin and gatifloxacin) have lower rates of bacterial resistance than second- and third-generation fluoroquinolones (ciprofloxacin, ofloxacin, and levofloxacin)<sup>5,12</sup>.

### Budget Impact

- The average treatment cost with fluoroquinolones and non-quinolones eye drops is C\$2.34 and C\$1.13, respectively (average cost calculation includes generic products when available).<sup>18</sup> Assuming 25% of patients (160 000) are currently using a fluoroquinolone eye drop to treat their bacterial conjunctivitis and the rest of patients (75%) are using another antibiotic (gentamicin or tobramycin eye drop), total drug expenditures may be estimated to C\$916,800 (Table I).

**Table I**

Treatment	Average treatment cost*	Number of patients	Annual budget impact due to drug cost alone
Quinolones	\$2.34	160,000	\$374,400
Other antibiotics	\$1.13	480,000	\$542,400

\* Treatment course assumes the use of a 5 ml bottle over 5 to 7 days

- Should a policy change allows most patients (75%) presenting with conjunctivitis be prescribed an ophthalmic fluoroquinolone, with the remainder of patients (25%) using another ophthalmic antibiotic (gentamicin or tobramycin), the total drug expenditure would be C\$1,304,000 (Table II).

**Table II**

Treatment	Average treatment cost*	Number of patients	Annual budget impact due to drug cost alone
Quinolones	\$2.34	480,000	\$1,123,200
Other antibiotics	\$1.13	160,000	\$180,800

- The budget impact of such a policy change may therefore be estimated to a net increase in drug expenditures of C\$387,200.

### Economic Impact

- Although the precise economic impact of conjunctivitis in Canada is unknown, the condition impacts healthcare expenditure. In 1998, drug expenditure on disorders of conjunctiva amounted to C\$ 88.5 million.<sup>19</sup>
- In the Netherlands, ocular antibiotics prescriptions in 2001, was estimated at €9 million and in the same year ocular antibiotic prescription cost England £7.1 million.<sup>3</sup>
- In view of above, potential economic benefits may include a reduction of direct medical costs (medical visits, specialized care with ophthalmologist) as well as improved quality of life. Reductions in indirect cost may also be possible if absenteeism is avoided.

### Evidence

- No technology assessment or systematic reviews, or economic evaluations were identified. Eleven clinical trials were identified<sup>5,8-17</sup>

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