

# OHTAC Recommendation

Diurnal tension curves for assessing the  
development or progression of glaucoma

*Presented to the Ontario Health Technology  
Advisory Committee in November, 2010*

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# Diurnal Tension Curves for Assessing the Development or Progression of Glaucoma

## Issue Background

A literature search was conducted by the Medical Advisory Secretariat to determine whether the use of a diurnal tension curve, defined as multiple intraocular pressure (IOP) measurements over a minimum 8 hour duration, is:

1. More effective than not using a diurnal tension curve (i.e. using single IOP measurements) to assess IOP fluctuation as a risk factor for the development or progression of glaucoma.
2. Beneficial for glaucoma suspects or patients with progressive glaucoma, despite normal single office IOP measurements, and leads to a more effective disease management strategy.

## OHTAC Findings





Based on the MAS review, OHTAC found:

- No randomized controlled trials or observational studies were identified that met the inclusion criteria and directly compared diurnal tension curves to single IOP measurements.
- There was very low quality evidence for the use of diurnal tension curves to assess IOP fluctuation as a risk factor for the development or progression of glaucoma. Limitations to the studies included:
  - Retrospective or retrospective subgroup study designs from randomized controlled trials that were not designed to evaluate the use of diurnal tension curves to assess IOP fluctuation as a risk factor for glaucoma.
  - Patients treated with various antiglaucoma drugs or interventions before IOP measurements were taken.
  - Heterogeneity in the populations studied, i.e. patients with chronic glaucoma along with newly diagnosed patients; primary open angle glaucoma, normal tension glaucoma or exfoliative glaucoma.
  - Inconsistency of the results, i.e., significance of mean IOP or IOP fluctuation as an independent risk factor for development or progression of glaucoma.
- There is very low quality evidence (expert opinion) whether a diurnal tension curve is beneficial for glaucoma suspects or patients with progressive glaucoma, despite normal single IOP measurements, and leads to a more effective disease management strategy.

# Diurnal Tension Curves for Assessing the Development or Progression of Glaucoma

## Decision Determinants

OHTAC has developed a decision-making framework that consists of seven guiding principles for decision making and a decision-making tool, called the Decision Determinants (DD) tool. The evaluation of the four explicit main criteria (overall clinical benefit, value for money, feasibility of adoption into health system, and consistency with expected societal & ethical values) are reported in using 1 of 4 symbols. For more information on the Decision-Making Framework and the meaning of the symbols below, please refer to the [Decision Determinants Guidance Document](http://www.health.gov.on.ca/english/providers/program/ohtac/decision_frame.html) or visit: [www.health.gov.on.ca/english/providers/program/ohtac/decision\\_frame.html](http://www.health.gov.on.ca/english/providers/program/ohtac/decision_frame.html)

Technology	
Overall clinical benefit	
Consistency with expected societal and ethical values	
Value for money	
Feasibility of adoption into the health system	

In considering the above ratings, OHTAC determined that:

- low quality evidence for the use of diurnal tension curves to assess IOP fluctuation as a risk factor for progression or development of glaucoma, and
- low quality evidence (expert opinion) that diurnal tension curves for glaucoma suspects or patients with progressive glaucoma (despite normal single IOP measurements) lead to a more effective disease management strategy

outweighed value for money or feasibility of adoption into the health system. According to an expert consultant, the usual course of treatment for a patient who experiences progression of their glaucoma despite normal single office IOPs (without the use of a diurnal tension curve) is to treat presumptively with another treatment or surgery. Furthermore, if the IOP is in mid-teens or higher, set a lower target therapy.

## OHTAC Recommendation

OHTAC made the following recommendation:

There is insufficient evidence to support the adoption of diurnal tension curves in the management of glaucoma.