THE COST OF SLEEP DISORDERED BREATHING DIAGNOSIS IN ALBERTA

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CONFLICT OF INTEREST STATEMENT

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• There are no other potential conflicts of interest to declare.
BACKGROUND

• In 2003, the Expert Advisory Panel to Review Publicly Funded Health Services issued a report titled *Burden of Proof*

• The provincial government responded to the Panel’s recommendations by establishing the **Alberta Health Technologies Decision Process** (AHTDP)

• Elements of the AHTDP are the Alberta Advisory Committee on Health Technologies, the Health Technologies and Services Policy Unit (Alberta Health), 3 research groups (Health Technology Assessment Partners) and Expert Advisory Groups.
From the Alberta Health website:

• The Decision Process involves the use of appropriate evidence and information for decision-making on the public funding of health technologies and services, with emphasis on technologies requiring review provincially or nationally. Through rigorous and timely review of selected health technologies, it contributes to the health outcomes of Albertans and a sustainable health system.

• The Decision Process, by bridging together research, public policy, and service delivery, allows the ministry and government to make evidence-informed decisions about the funding of health services.
The objective of this review was intended to inform decisions regarding the provision of sleep studies in Alberta for diagnosing sleep disordered breathing.

Which sub-populations of SDB patients are most appropriately diagnosed with level I sleep studies, and which with level III studies?

What are the effectiveness or efficacy, and safety, of level I and level III sleep studies for the diagnosis of SDB conditions?

What are the social, ethical and legal considerations for the provision of level I and level III sleep studies for the diagnosis of SDB conditions?

What are the fiscal and economic considerations for providing level I and level III sleep studies for the diagnosis of SDB conditions?
SCOPE OF THE REVIEW

In this assessment sleep disordered breathing (SDB) includes the following disorders:

- obstructive sleep apnea
- upper airway resistance syndrome
- central sleep apnea
- Cheyne-Stokes respiration
- primary pulmonary disorders
- nocturnal hypoxia/hypoventilation
- bronchospasm
SDB EXPERT ADVISORY GROUP

• Dr. Adam Blackman (MedSleep)

• Ms. Reverdi Darda (Alberta Health Services, Zone Medicine Program, Ambulatory Care & RT Services)

• Dr. Paul Easton (University of Calgary, Critical Care Medicine)

• Dr. Ward Flemons (Alberta Health Services, Foothills Medical Centre)

• Dr. Irvin Mayers (University of Alberta, Division of Pulmonary Medicine)

• Dr. Brian McNab (University of Alberta, Edmonton Sleep Disorders Laboratory)

• Dr. Lawrence Pawluk, (University of Alberta, Department of Psychiatry, Sleep Medicine Program)
COST OF SDB DIAGNOSIS?

Total cost of diagnosis

= unit cost of each service x number of units provided,

summed over all individual services

Requires knowing  
(1) what each individual service is,  
(2) the cost of providing each one, and  
(3) the number of times each service is provided

Data! Data! Data!
COST OF SDB DIAGNOSIS?

• Which patients do you include?

• How long a time frame do you want to know the costs for?

• Whose costs are you interested in?
COST OF SDB DIAGNOSIS?

• For policy purposes, what is required is an estimate of what it might cost the public purse to provide diagnostic services (with Level I and Level III testing) in what is deemed to be a clinically appropriate manner to patients in Alberta presenting with sleep disordered breathing.

• This requires an economic model to be developed based on an appropriate clinical pathway.

• This is called a budget impact analysis, and there are good practice guidelines for conducting such analyses.
Patient presents to GP with sleep complaint:

Suspected uncomplicated OSA & no comorbidities
- Level III test
  - Positive for OSA
    - Referral to sleep specialist
  - Negative for OSA
    - Level I test

Suspected complex SDB or patient with comorbidities
- Level III test
  - Positive for OSA
    - Level I test
  - Negative for OSA
    - Level I test
  - Ambiguous or technical failure
    - Repeat level III test*

*Repeat testing until diagnosis achieved or a maximum of two level III tests and two level I tests is reached.
DATA FOR THE MODEL

No. of patients presenting annually to a GP with SDB: 14,271

Source: BC physician payment data

Cost data –

- Initial GP visit $80
- Follow-up GP visit for referral to specialist $44
- Cost of initial specialist visit $226
- Cost of level I test $1,642
- Cost of in-home level III test $150

Sources: Alberta Health, expert opinion, vendor lists
DATA FOR THE MODEL

Clinical data –
• Fraction of sleep complaints due to suspected uncomplicated OSA 0.79
• Fraction of patients dropping out before sleep test 0.06
• Fraction of patients with complex disorders who have a level I test 0.80
• Fraction of patients with complex disorders who have a level III test 0.20

Sources: clinical effectiveness review, expert opinion
DATA FOR THE MODEL

Additional clinical data –
• Probabilities of positive and negative results; probabilities of true and false positives; fractions of patients with repeat tests, etc.

Sources: clinical effectiveness review, expert opinion
RESULTS

• The cost of treating 14,721 patients suspected of sleep disordered breathing will be $17,420,000 at an AHI>15, and $10,490,000 at AHI>5

• It will cost approximately $1,180 per patient at an AHI>15, and $710 at AHI>5
WHAT NEXT?

• A “synthesis document” is being prepared by Alberta Health

• This and the complete review will be discussed by the EAG

• Policy recommendations will be formulated for consideration by the AACHT

• AACHT will make a recommendation to the ministry
• Full version of the review report (available now):

   
   _Level I and Level III Sleep Studies for the Diagnosis of Sleep Disordered Breathing (SDB) in Adults (2013)_

   http://www.health.alberta.ca/initiatives/AHTDP-completed-reviews.html

• Published manuscript on the clinical review (available 4 November):

   _Diagnostic accuracy of level 3 portable sleep tests versus level 1 polysomnography for sleep-disordered breathing: a systematic review and meta-analysis_. Canadian Medical Association Journal. El Shayeb M, Topfer L-A, Stafinski T, Pawluk L, Menon D.