

## **Validated Questionnaires and an Ambulatory Monitor in the Diagnosis of Obstructive Sleep Apnea**

Authors: Effie J. Pereira, Helen S. Driver, Steven C. Stewart, Michael F. Fitzpatrick

Institutions: Department of Medicine, Queen's University, Kingston, ON, Canada; Sleep Disorders Laboratory, Kingston General Hospital, Kingston, ON, Canada

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### **ABSTRACT**

Introduction & Objectives: Screening questionnaires have been validated in populations at risk for obstructive sleep apnea (OSA). Simplified ambulatory monitors have become accepted for confirmation of OSA in patients with a high pre-test probability. Advantages of an alternative algorithm to in-lab polysomnography (PSG) include timely access to diagnosis and reduced costs. This study compared the diagnostic utility of three validated questionnaires and a Level III portable monitor (PM), in the diagnosis and exclusion of OSA.

Materials & Methods: One hundred and fifty patients recruited from the Kingston General Hospital Sleep Clinic completed (i) three validated questionnaires (Sleep Apnea Clinical Score, Stop-Bang Questionnaire, and Berlin Questionnaire), (ii) wore a Level III PM device (MediByte<sup>®</sup>, Braebon, Kanata), and (iii) underwent in-lab polysomnography. Downloaded MediByte\* data, including oximetry, nasal pressure airflow, and respiratory inductance plethysmography, were manually scored by an experienced scorer, blind to in-lab PSG results. Questionnaire and PM data were then compared with Level I in-laboratory overnight PSG.

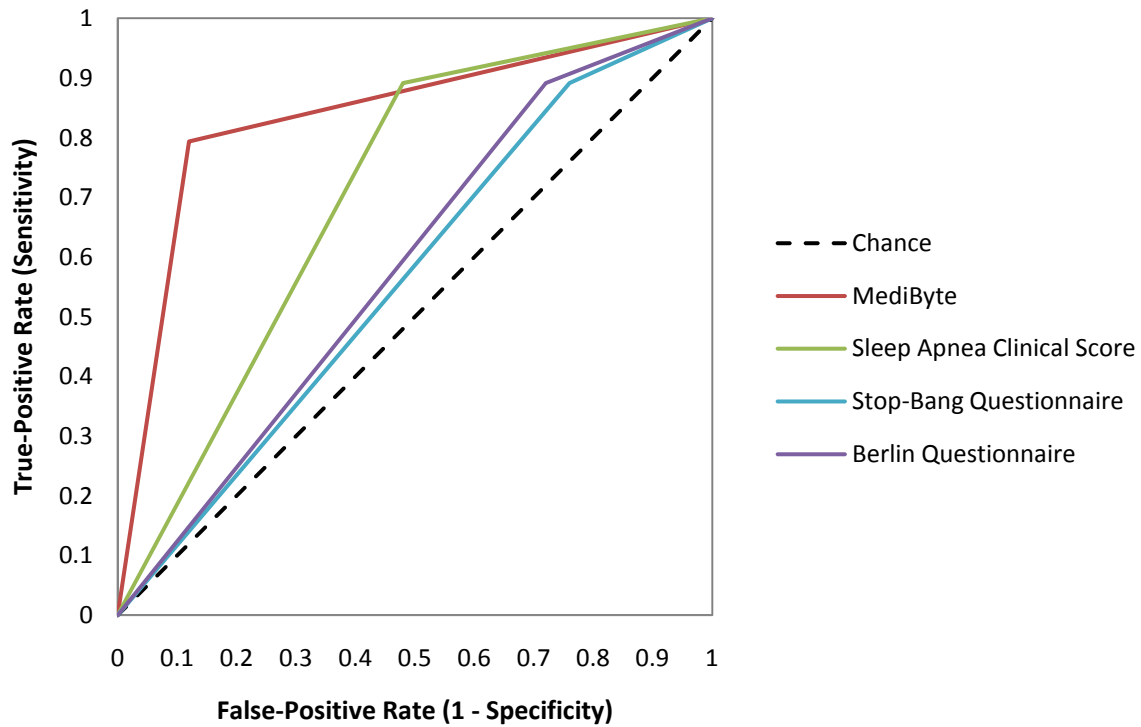
Results: Of 150 patients recruited, data for 117 patients (77 M, 40 F), mean age  $50 \pm$  SD 12.6 years, mean BMI  $31 \pm$  SD 6.6 kg/m<sup>2</sup>, is available. At a diagnostic threshold AHI of 10 (based on in-lab polysomnography) the PM had slightly lower sensitivity (79%) but greater specificity (88%) than any of the questionnaires. The sensitivity and specificity for each of the questionnaires was as follows: Sleep Apnea Clinical Score 89%, 52%; Stop-Bang 89%, 24%; Berlin 89%, 28%. For a diagnostic threshold AHI of 15, the sensitivity and specificity were as follows: MediByte 79%, 94%; Sleep Apnea Clinical Score 91%, 50%; Stop-Bang 91%, 28%; Berlin 91%, 28%.

Conclusions: Our findings underscore the importance of objective measurement of respiration in the assessment of OSA, rather than reliance on validated questionnaires.

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## FIGURES



**Figure 1:** ROC curves for the MediByte and three validated questionnaires -- Sleep Apnea Clinical Score, Stop-Bang Questionnaire, and the Berlin Questionnaire -- with a polysomnography AHI cutoff of 10 events/hr.