

# COST EFFECTIVE AMBULATORY POLYSOMNOGRAPHY FOR OTOLARYNGOLOGISTS

Miikka Peltomaa<sup>1</sup>, Andreo Larsen<sup>2</sup>, Heikki Lehti<sup>3</sup>, Antti Mäkitie<sup>4</sup> and Pekka Tiihonen<sup>5</sup>

<sup>1</sup> ENT Center Aino, Järvenpää, Finland, <sup>2</sup> Department of Clinical Neurophysiology, Helsinki University Hospital, Helsinki, Finland, <sup>3</sup> Remote Analysis Ltd., Kuopio, Finland, <sup>4</sup> Department of Otolaryngology, Helsinki University Hospital, Helsinki, Finland, <sup>5</sup> Department of Clinical Neurophysiology, Kuopio University Hospital, Kuopio, Finland

## Introduction

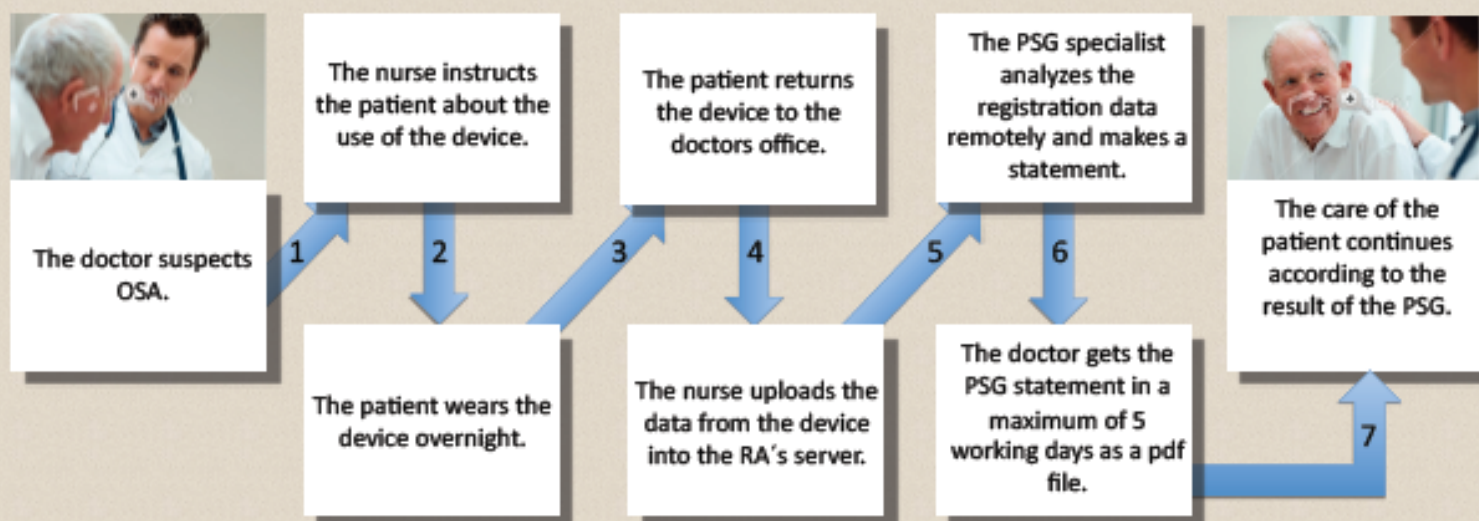
Obstructive sleep apnea (OSA) is an underdiagnosed clinical entity. An ENT specialist regularly meets OSA patients especially among snorers. Sleep laboratory polysomnography (PSG) is labour intensive and time consuming and therefore unsuitable for the screening of patients at the risk of OSA. Home-based overnight sleep study is a state-of-the-art method, a cost effective and easy way of screening for OSA.



The device records blood oxygen saturation, nasal and oral air flow, breathing movements, body position, snoring and heart rate. The device includes fingertip pulse oxymeter (Nonin XPOD 3011, Nonin Medical Inc., USA) recording blood oxygen saturation and heart rate. Nasal and oral airflow is measured and snoring is detected by a single use pressure cannula (Pro-Flow Plus Nasal Oral Cannula, Pro Tech Services, USA). For the recording of abdominal movements, a strain gauge transducer is taped onto the patient's skin over the lowest rib on the right. The body position sensor is inside the device.

## APV2 polysomnography device

APV2 is a novel type 3 ambulatory PSG device developed by Remote Analysis Ltd (Kuopio, Finland) (RA) (Figure). The technical reliability and diagnostic sensitivity of APV2 (including a comparison to the widely in sleep laboratories used PSG device EMBLA) is scientifically well documented (Tiihonen et al., 2009). It is in use at 150 Finnish primary health care centers and private clinics. More than 3000 PSG reports are delivered annually.



## Conclusion

The Remote Analysis polysomnography service reduces queues to secondary care by allowing patients to be quickly and reliably screened before referral. This service model is cost effective and enhances the accessibility of high quality diagnostics in primary healthcare. Furthermore, this easy-to-conduct screening of OSA is a practical diagnostic method also for any otolaryngologist's practice.

## References

Tiihonen P, Hukkanen T, Tuomilehto H, Mervaala E, Töyräs J. Evaluation of a novel ambulatory device for screening of sleep apnea. *Telemedicine and e-Health* 15(3): 283-289, 2009