

Indications and costs of polysomnography and pulse oximetry in Estonia

Summary

Objectives: Current HTA aims to evaluate current indications and proposed additional diagnosis-based criteria for polysomnography and pulse oximetry for diagnostics of sleep disorders and sleep-related breathing disorders. Study analyses current health service usage, related costs and budget-impact analysis for 2014–2018.

Methods: Literature reviews in PubMed, the Cochrane Database of Systematic Reviews and the International Network of Agencies for Health Technology Assessment database were carried out for health problem and technology description, effectiveness and cost-effectiveness evidence. The data from Estonian Health Insurance Fund was analysed for sleep disorder diagnoses in medical invoices (2008–2012) and usage of polysomnography and pulse oximetry (2011–2012). Current resource costs and prognosis for 2014–2018 (including criteria of diagnostic criteria, study capacity and rising costs) were calculated.

Results: Polysomnography is gold standard for diagnosis of sleep disorders (incl sleep apnea), pulse oximetry is a limited study and is not indicated for establishing final diagnosis in prominent AASM and European Sleep Research Society Guidelines. Additional diagnosis-based criteria (excluding circadian rhythm disorders and insomnia related to mood disorders) are applicable for polysomnographic evaluation, but not for pulse oximetric study. Available cost-effectiveness studies, despite heterogeneity in used treatment strategies and included costs allow to conclude that polysomnography is more expensive but also provides more health benefits compared to other diagnostic procedures. The number of patients with sleep disorders in 2008–2012 has increased by 50%, with the majority being diagnosed with sleep apnea. Additional diagnosis-based criteria increase the potential demand for polysomnography to 14 000 new patients in 2018 with predicted additional cost 4.7 million euros. Real service capacity is estimated at 1900 studies (with increase by 100 studies per annum). Therefore realistic budget-impact prognosis based on available infrastructure and human capital resources estimate 2300 studies with overall cost of 706 353 euros in 2018 (2.1 times increase compared to current level in 2012).

Conclusions: Diagnostic information provided by polysomnography and pulse oximetry differs and studies cannot be substituted. Therefore current indications and additional criteria must be differentiated, with only polysomnography indicated for establishing final diagnosis of sleep disorders (including sleep apnea). Based on overall increase of sleep disorder diagnoses in 2008–2012, additional criteria are expected to increase the demand and costs for Estonian Health Insurance Fund significantly. Available service capacity and its limited growth may, with modified current and additional criteria, improve availability of the service but also limit expenses from healthcare provider perspective.

Reference: Reile R, Võrno T, Pindmaa M, Türnpuu P-M, Kiivet R-A. Polüsomnograafia ja pulsoksümeetrilise uuringu kasutamise näidustused ja kulud Eestis. Tartu: Tartu Ülikooli tervishoiu instituut; 2013.