

Precision health: the new frontier of preventive medicine

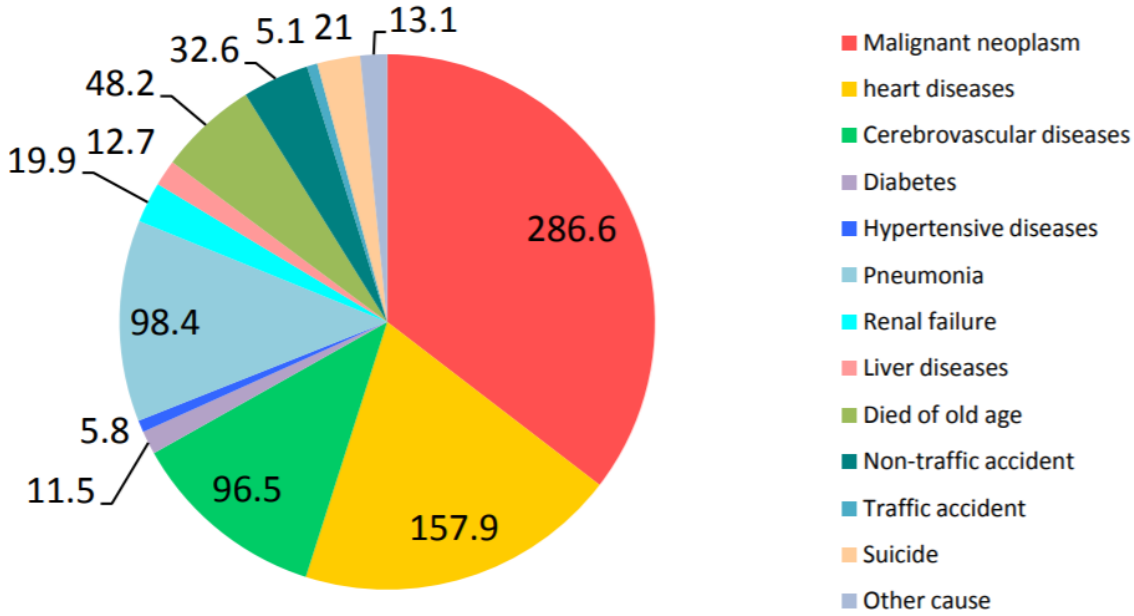
Sleep - the next step in precision health and disease prevention

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Background Life-style related diseases in Japan

Cause specific mortality rate per 100,000 population



Source: 2012 Vital Statistics, MHLW

Life-style related diseases cause 60 % of deaths, and 30 % of public medical expense

Overview

Problems & Background

Annual mandatory health screening for 40-74 year old employees has implemented in Japan since 2008. However, no preventive medicine program has been established to reduce health risk level using health examination data.

1

Identify High Risk Employees Before New Onset



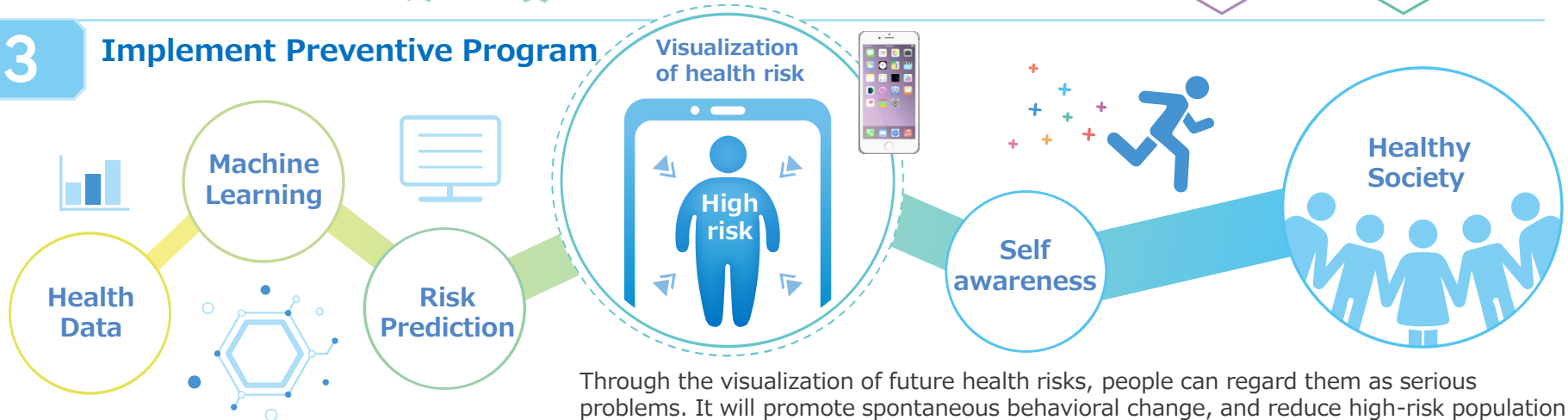
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Factors in Daily Life



3

Implement Preventive Program

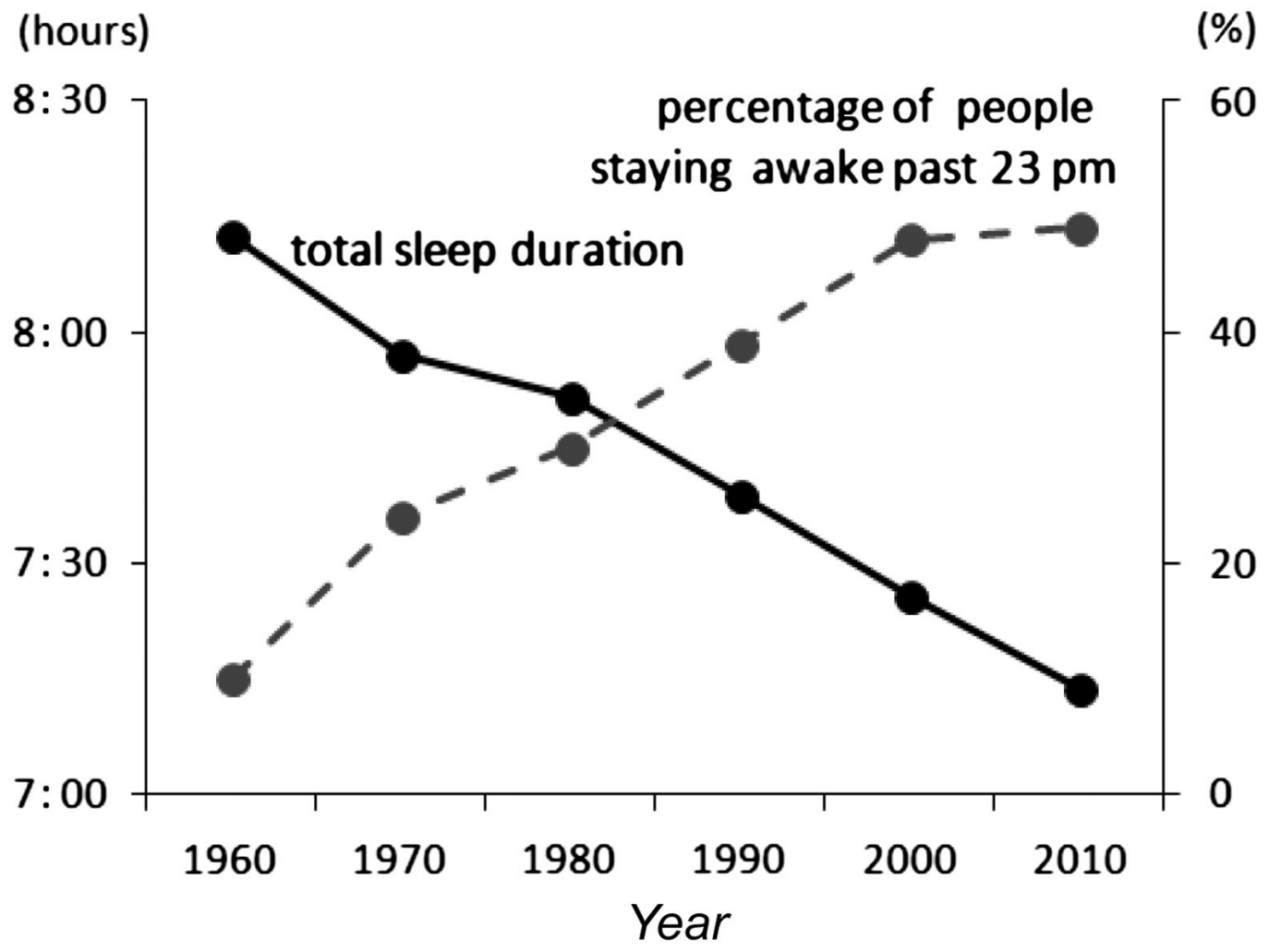


Through the visualization of future health risks, people can regard them as serious problems. It will promote spontaneous behavioral change, and reduce high-risk population.

Sleep: a new approach to lifestyle-related disease

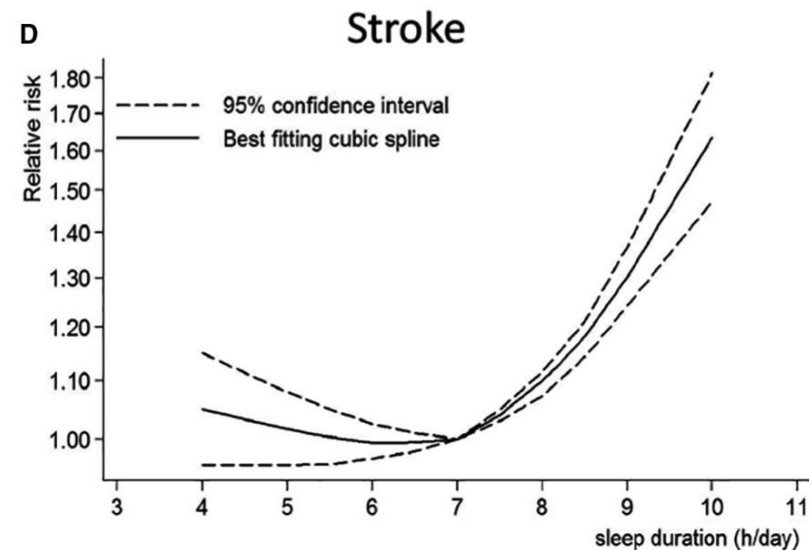
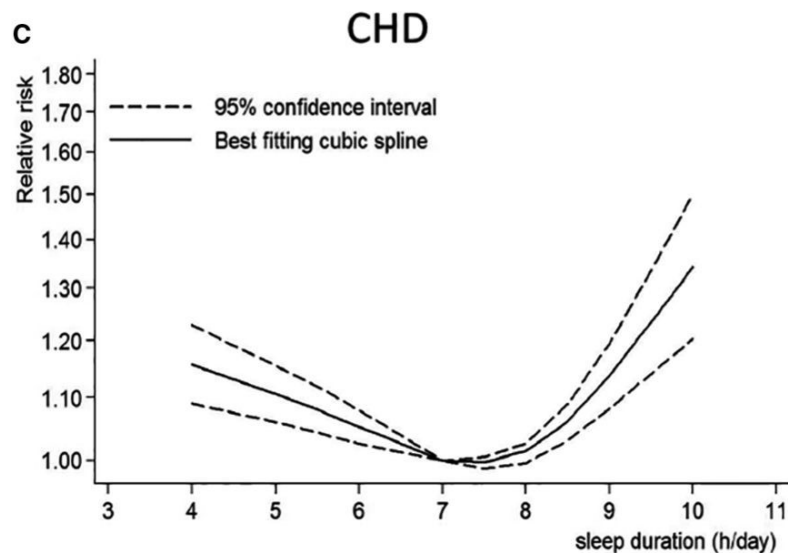
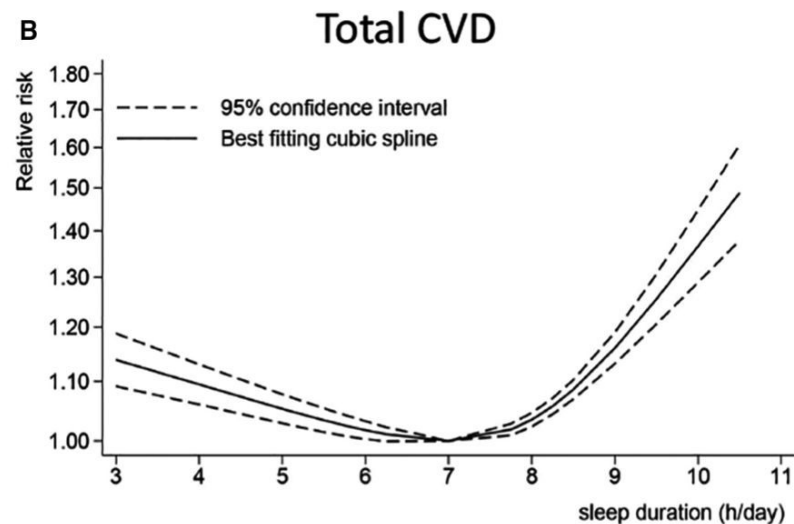
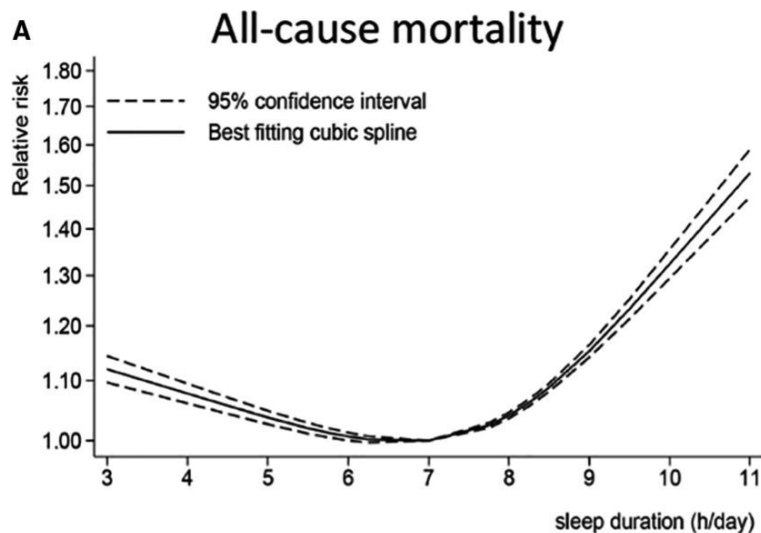


Trends in sleep duration in Japan



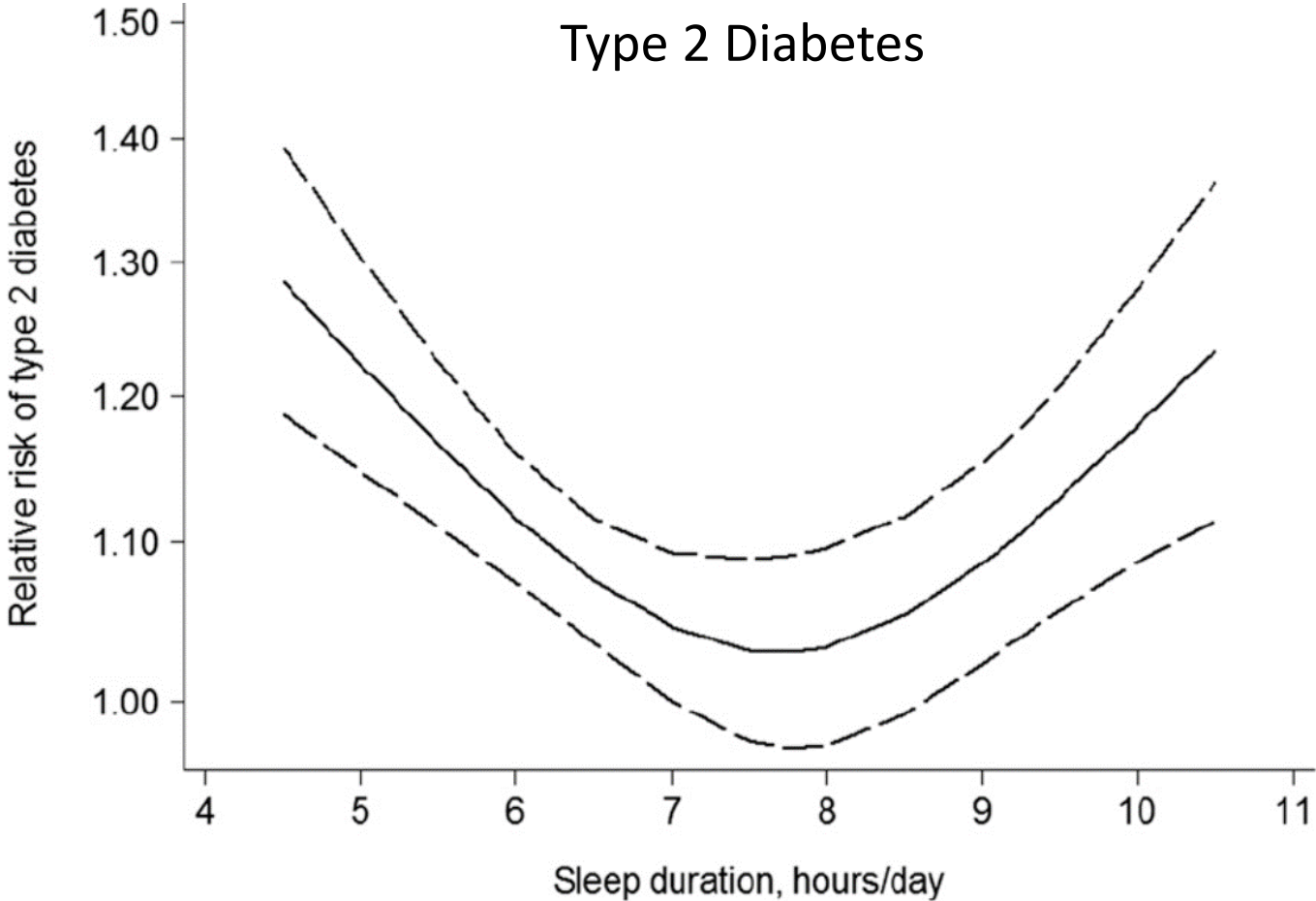
Komada et al 2013. *Short sleep duration, sleep disorders, and traffic accidents*. IATSS Research

Sleep duration and health outcomes



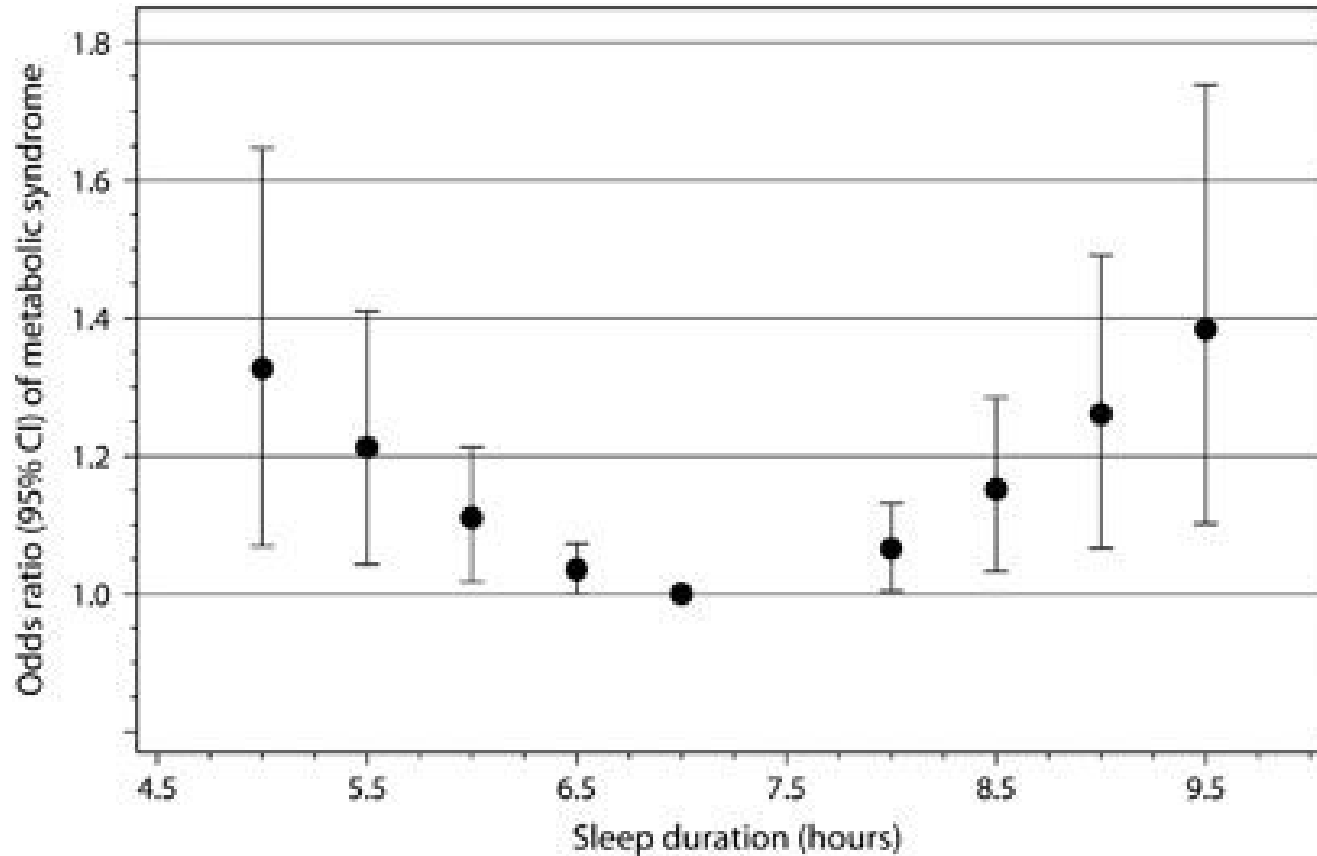
Yin et al 2017. *Relationship of Sleep Duration With All-Cause Mortality and Cardiovascular Events: A Systematic Review and Dose-Response Meta-Analysis of Prospective Cohort Studies.* JAMA

Sleep duration and health outcomes



Shan et al 2015. *Sleep Duration and Risk of Type 2 Diabetes: A Meta-analysis of Prospective Studies. Diabetes Care*

Metabolic syndrome

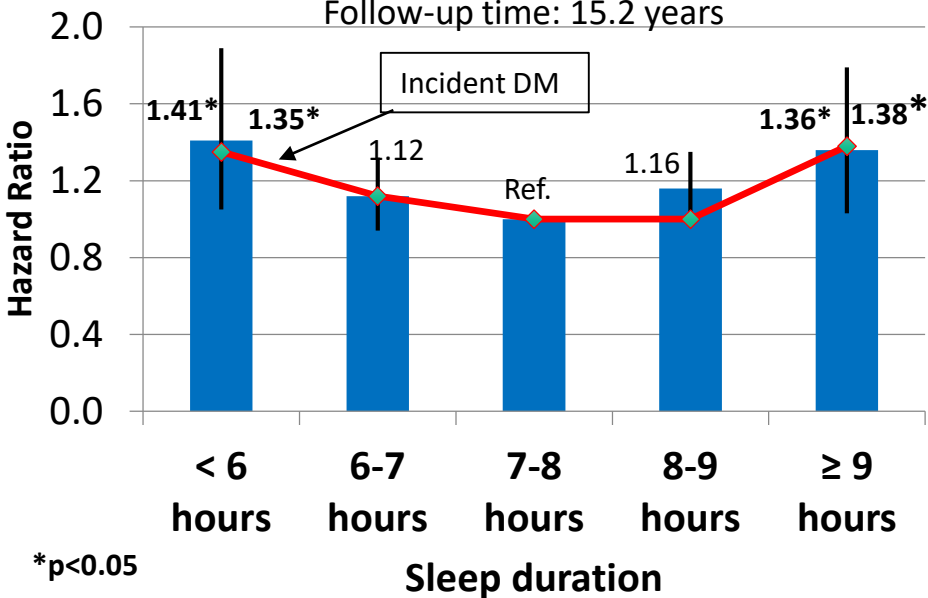


Ju et al 2013. *Sleep duration and metabolic syndrome in adult populations: a meta-analysis of observational studies. Nutrition & Diabetes*

Sleep duration and incident coronary heart disease (MEN)

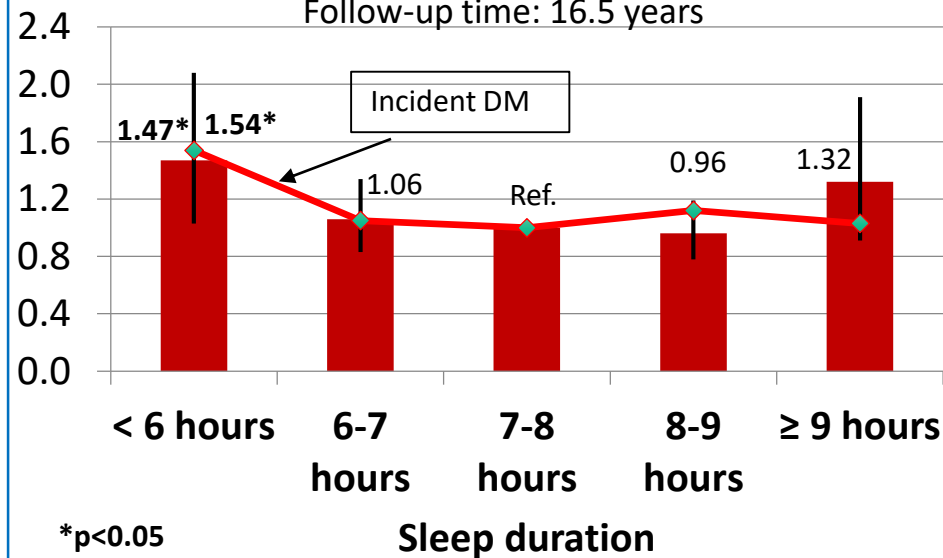
Incident CHD and incident DM (MEN)

Follow-up time: 15.2 years



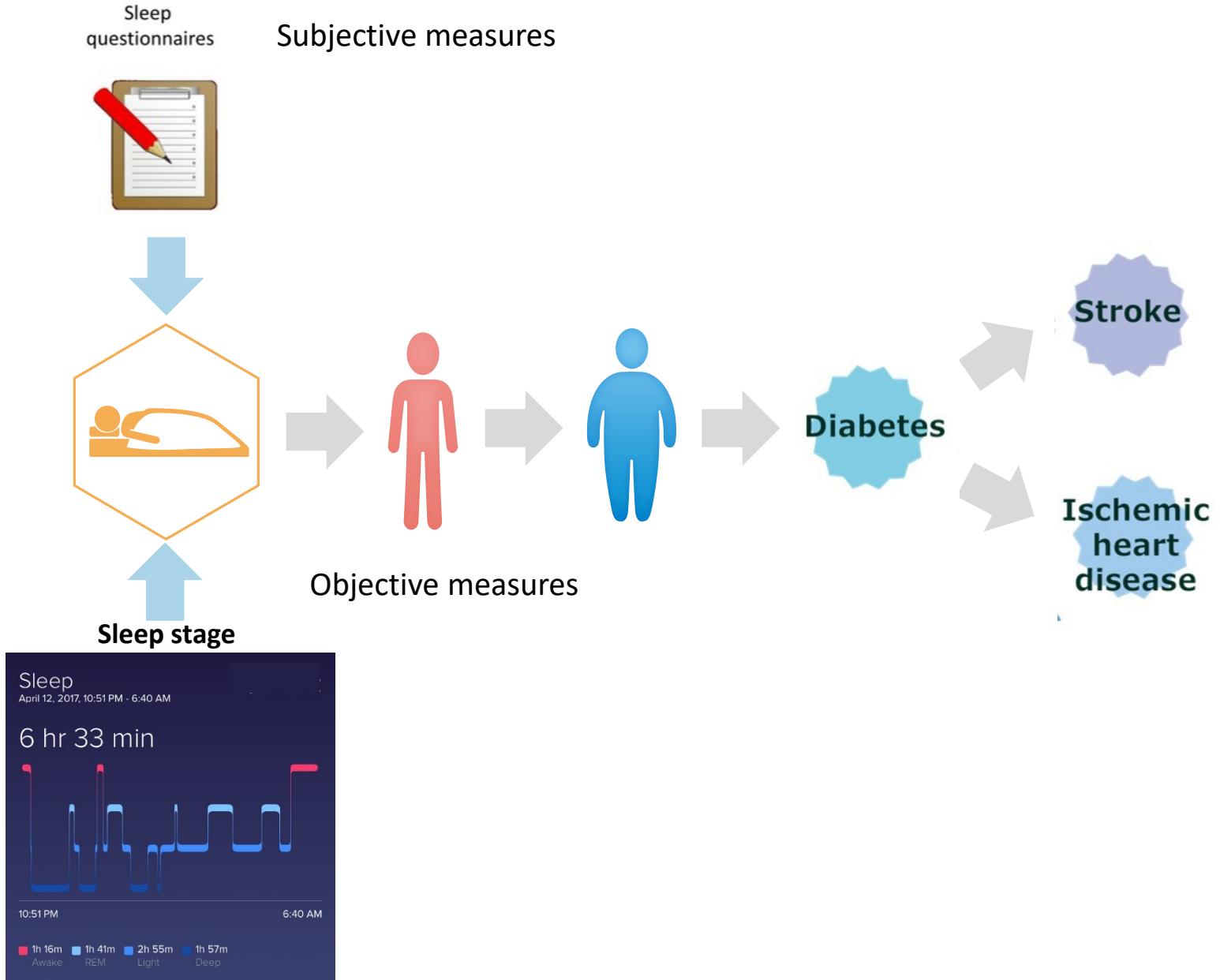
Incident CHD and incident DM (WOMEN)

Follow-up time: 16.5 years



Svensson et al. *Incident diabetes mellitus may explain the association between sleep duration and incident coronary heart disease. Diabetologia. 2018*

Pathway from sleep to disease





Thank you

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