

UK Dementia Research Institute

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Technology Requirements

- Evaluated in a relevant population
- Scalable / cost effective
- Acceptable to the target population

Standard devices



Polysomnography (PSG)

Actiwatch Spectrum (AWS) & Consensus Sleep Diary (SD)

Device Evaluated

Nearables



(WSA)



Radars

Tiresias networked radar Emfit QS (Emfit) system (Imperial College)

Wearables





Withings Scan Watch

Axivity Accelerometer



Dreem Headband Somnomedics Home Sleep

Video

Kinect Camera

Environmental



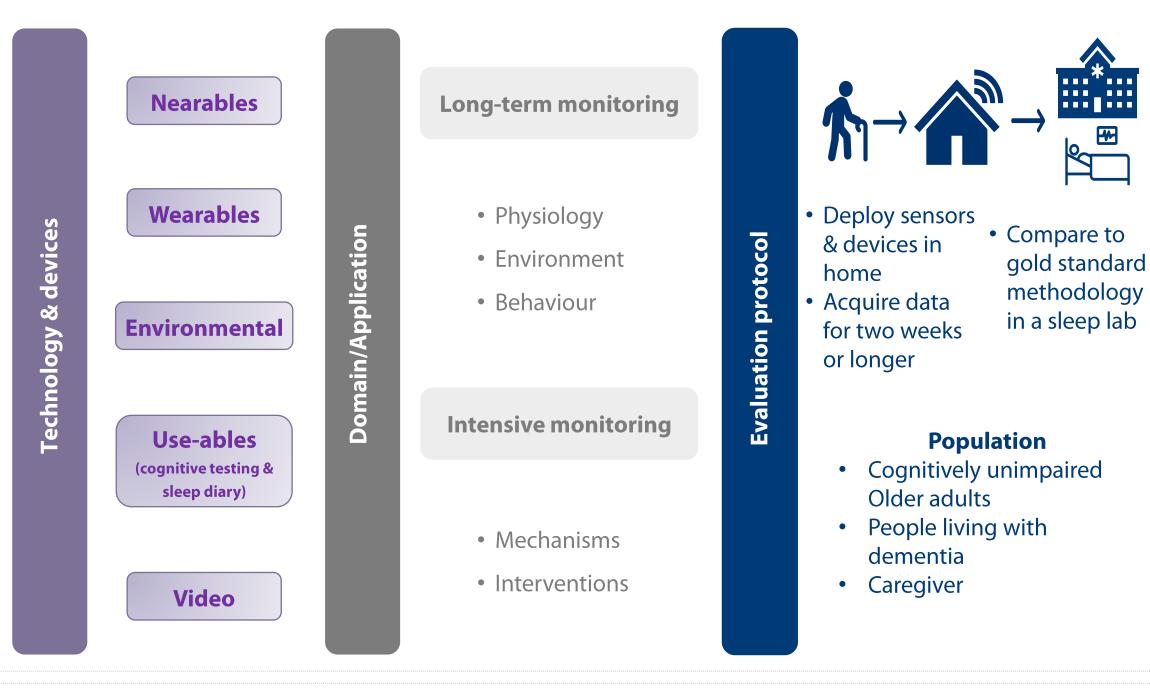






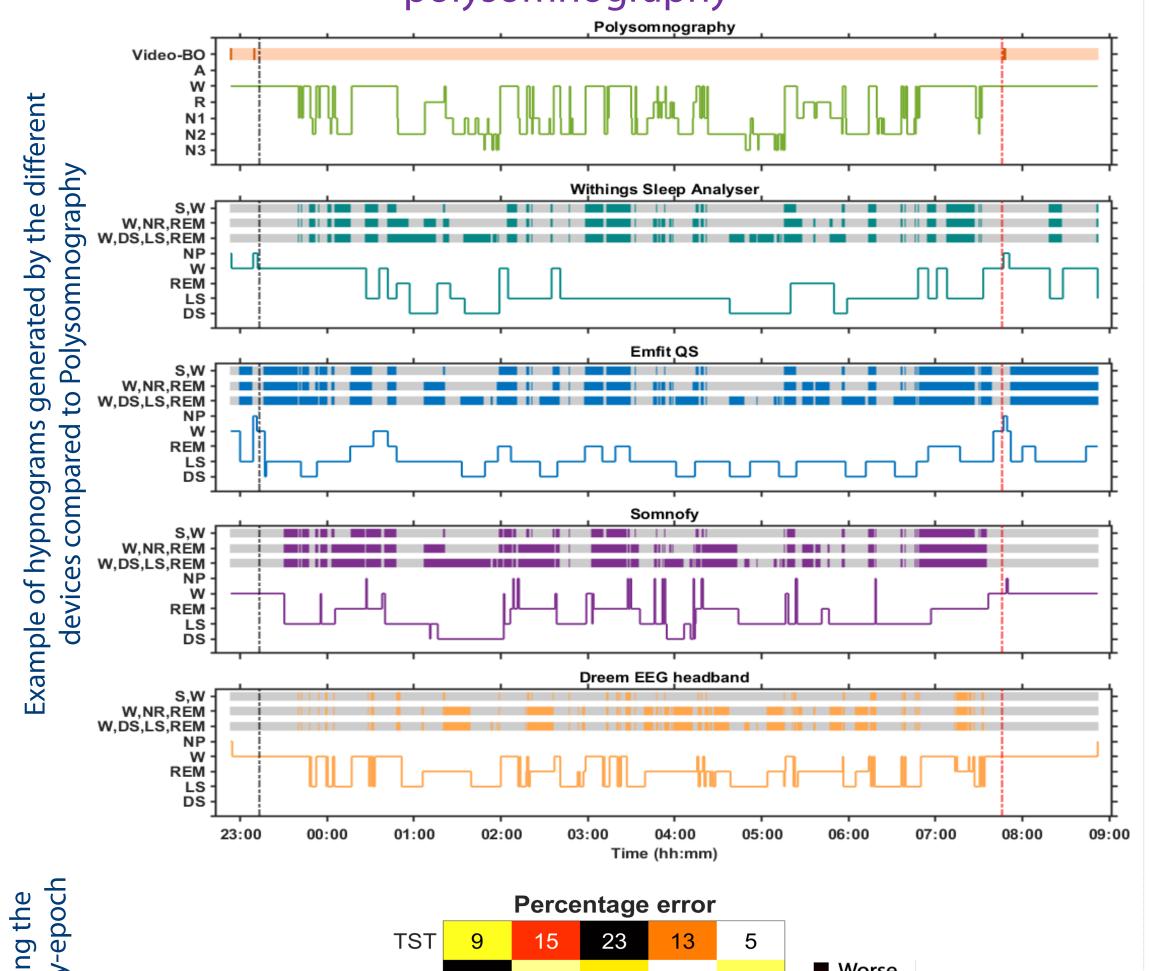


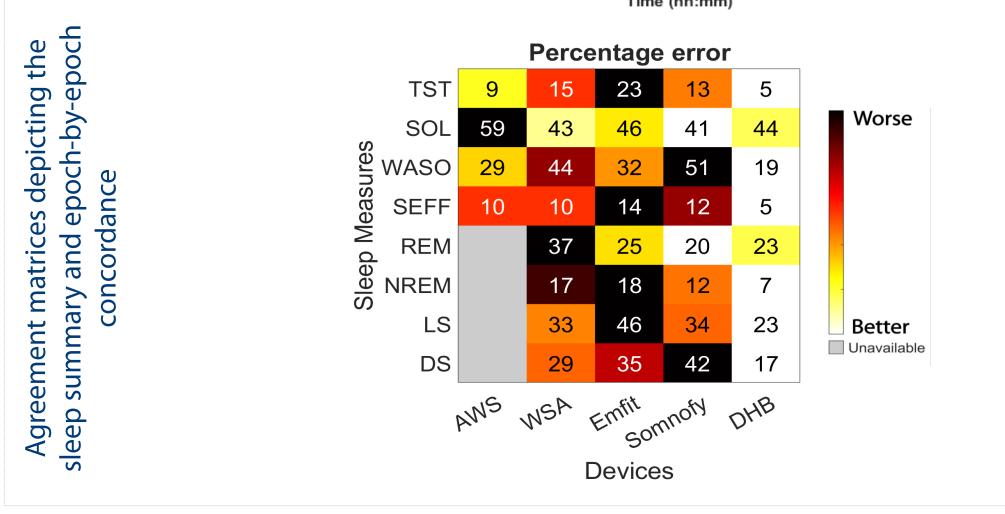
Our Approach



Sleep Architecture

The performance of contactless technologies with respect to total sleep time and sleep stage estimation requires improvement before they can serve as an alternative to polysomnography

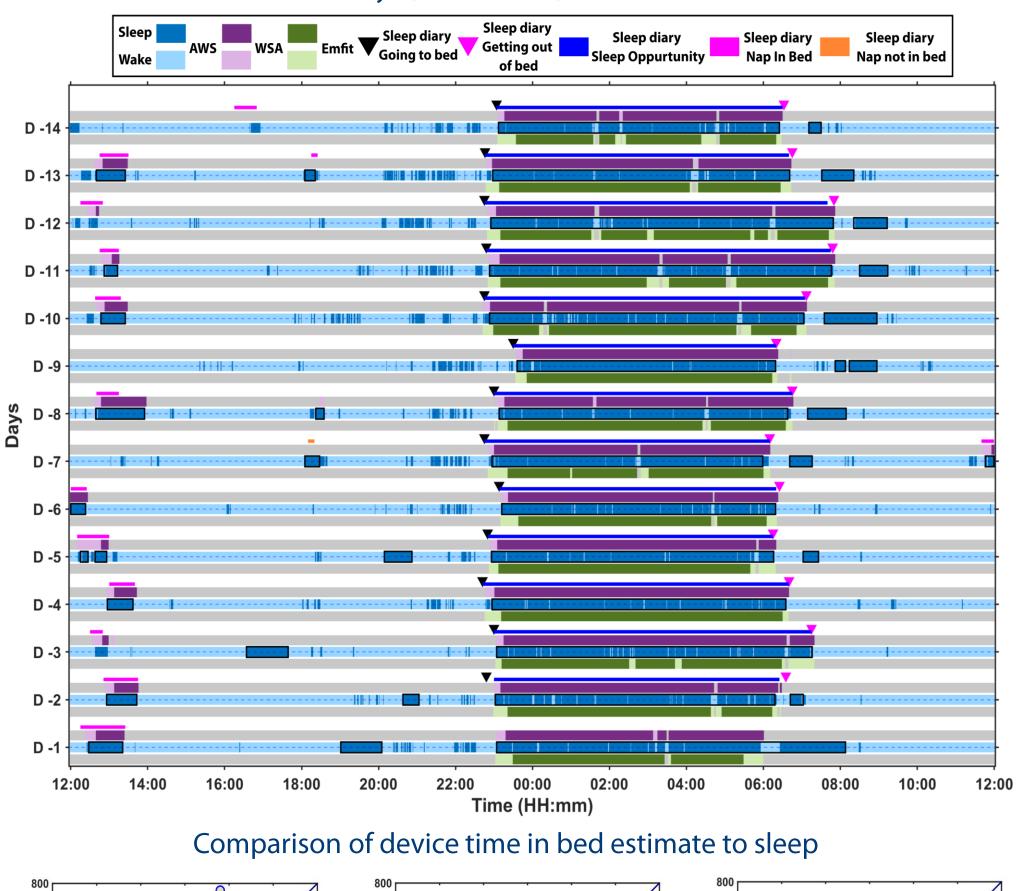




Longitudinal Sleep Timing

Contactless technologies accurately capture the timing of in-bed nocturnal sleep periods without the need for sleep diary information

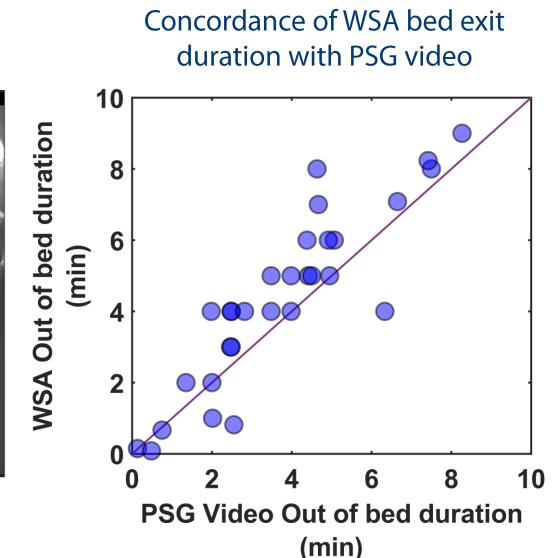
> Sleep behaviour patterns over 14 days (D-14 to D-1) at home



Bed exit rate

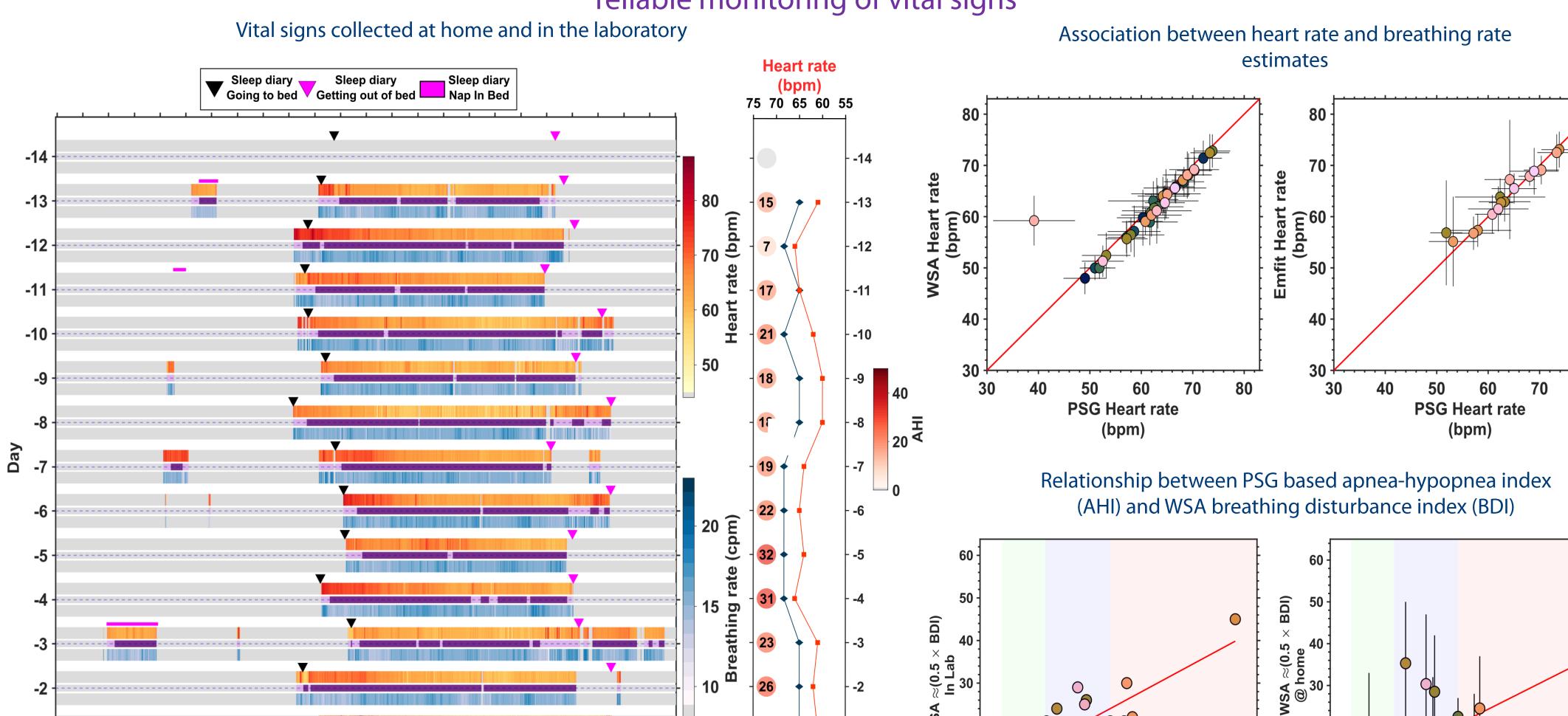
Bed presence information captured by the contactless technologies are concordant with polysomnography video data

A participant getting out of bed recorded by PSG video



Physiology during sleep

Contactless technologies offer an unintrusive alternative to conventional wearable technologies or polysomnography for reliable monitoring of vital signs



Breathing rate

(cpm)





Founding funders:

Manually scored AHI 3%





Manually scored AHI 3%

04:00

08:00

00:00

Time (HH:mm)

20:00

16:00