



# Show Me the Money



**396. Florencio Travieso**

Healthcare Data: A Holy Grail for Data Monetisation

**401. Hans Erik Henriksen**

Chronic Disease Management – Need For a Paradigm Shift to Reduce Costs and Maintain High Quality of Treatment

**407. Janette Hughes et al**

Introducing Hospitalisation@Home - Analysed Using the MAFEIP Tool

**415. Panagiota Pietri**

COVID-19 Pandemic: Health, Social and Economic Consequences

**419. Emma Sutcliffe**

Patient Engagement – An Adjuvant Therapy With Demonstrable ROI



# Diagnosing Initial Orthostatic Hypotension – The Race Against Sudden Blood Pressure Drops

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Initial Orthostatic Hypotension (OH) is described as a rapid and transient drop in blood pressure associated with the increased risk of falls, fractures and syncope, especially in the ageing population (Tran et al. 2021). As prevalence is high, the problem is evident, but due to limited access to reliable continuous diagnostic methods, the detection of OH is restricted. Experts demand continuous blood pressure measurements instead of the intermittent upper arm method with sphygmomanometers.

Can a disease such as Orthostatic Hypotension (OH), which is characterised by extremely rapid changes in haemodynamics, be efficiently diagnosed using standard methods such as upper arm blood pressure measurement? The answer is no! This has just recently been confirmed by a brand-new meta-analysis of the prevalence of initial orthostatic hypotension in adults aged 65 and older by Tran et al. (2021). Data of more than 5,400 individuals underlines the insufficiency of intermittent blood pressure measurements to reliably diagnose OH, compared to continuous methods. In patients suffering from initial OH, systolic blood pressure drops to  $> 40\text{mmHg}$  or to  $> 20\text{ mmHg}$  in diastolic blood pressure within the first 15 seconds of Active Standing - a commonly used test to assess the cardiovascular response to standing. The rapid blood pressure changes can hardly be detected with an upper arm sphygmomanometer. In fact, the pooled prevalence of continuously measured initial OH was five times higher than intermittently measured initial OH. "Continuous blood pressure monitoring is recommended to capture the transient changes in blood pressure upon immediate active standing or passive tilting" (Tran et al. 2021).

Other scientific data by Mol et al. (2021) also shows the need for continuous measurements in Active Standing Tests as "Orthostatic BP measurements using sphygmomanometer have an inadequate time resolution to record clinically relevant dynamics of orthostatic blood pressure recovery" (Mol



et al. 2021).

With regard to the negative implications such as pre-syncope episodes or falls, the demand for continuous methods to reliably diagnose initial OH is evident. “There is a need to establish a consensus on the diagnosis of initial OH using continuous blood pressure devices to consistently identify participants with initial OH” (Tran et al. 2021).

Reliable non-invasive continuous blood pressure monitors have been on the market for a long time and have proven

their importance for diagnosing initial OH. “Continuous BP measurements should be made routinely available and used in geriatric outpatient clinics” (Mol et al. 2021).

A comprehensive implementation of this claim is now easier than ever: CNSystems is launching the Touch Force® Touch CARDIO - an optimised solution for non-invasive haemodynamic measurement. It includes the successfully established CNAP® technology and has especially been designed for an easy application in the area of syncope assessment. ■

### Non-invasive hemodynamic measurement made easy, safe and reliable

CNSystems is technology leader in the development of non-invasive medical solutions for the assessment of continuous blood pressure and advanced hemodynamics.

Our devices are used for enhancing current measurement standards with non-invasive beat-to-beat data, e.g. for diagnosing patient status, assessing syncope and autonomic function.

Decreasing complication risks and improving patient outcome is made easy and affordable closing the cycle of research, prevention, early diagnosis, monitoring and treatment.

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Deriving full hemodynamic data completely non-invasively from one single finger sensor makes our products unique and applicable for a broad patient population in many areas:

- ✓ Anesthesia & Critical Care
- ✓ Cardiology / Neurology
- ✓ Research

**Learn more:** <https://www.cnsystems.com/applications/fields-of-application/>

## REFERENCES

Mol A, Slangen LRN, van Wezel RJA et al. (2021) Orthostatic blood pressure recovery associates with physical performance, frailty and number of falls in geriatric outpatients. *J Hypertens*, 39(1):101-106.

Tran J, Hillebrand SL, Meskers CGM et al. (2021) Prevalence of initial orthostatic hypotension in older adults: a systematic review and meta-analysis. *Age and Ageing*, 50(5):1520-1528.