

# Arterial stiffness recording with pOpmetre® in a general primary care population : the IPC cohort



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## OBJECTIVES

Aortic stiffness, best approached by pulse wave velocity (PWV), is one major determinant of health in hypertension. Among the devices measuring PWV, gold standard are pulse transit time recording techniques. pOpmetre® (P®) measures pulse at finger and toe levels using oximetry clip and adequate algorithm. It allows an assessment of the arteries aging in less than 5 minutes. It showed very good agreement against reference techniques, but P® feasibility and relevance were never tested in a large general population. We assessed P® in individuals from a primary care cohort.

## METHODS

### Population :

From September 2015 to April 2016, 643 subjects (379 men and 264 women) aged 18 to 95 years (Mean±SD: 43.8±13.6 years) had a standard health check-up at the IPC Center (Paris, France) including finger to toe pulse wave velocity recording with pOpmetre®, performed by nurses after 10 minutes supine resting to perform ECG and blood pressure measurements (three values averaged). Hypertensives were 129 (HTn: Systolic BP≥140 mmHg or Diastolic≥90 mmHg or treatment). Data from normotensives (NTn) were compared to aortic PWV reference values (*Eur Heart J*, 2010; 31, 2338–2350).

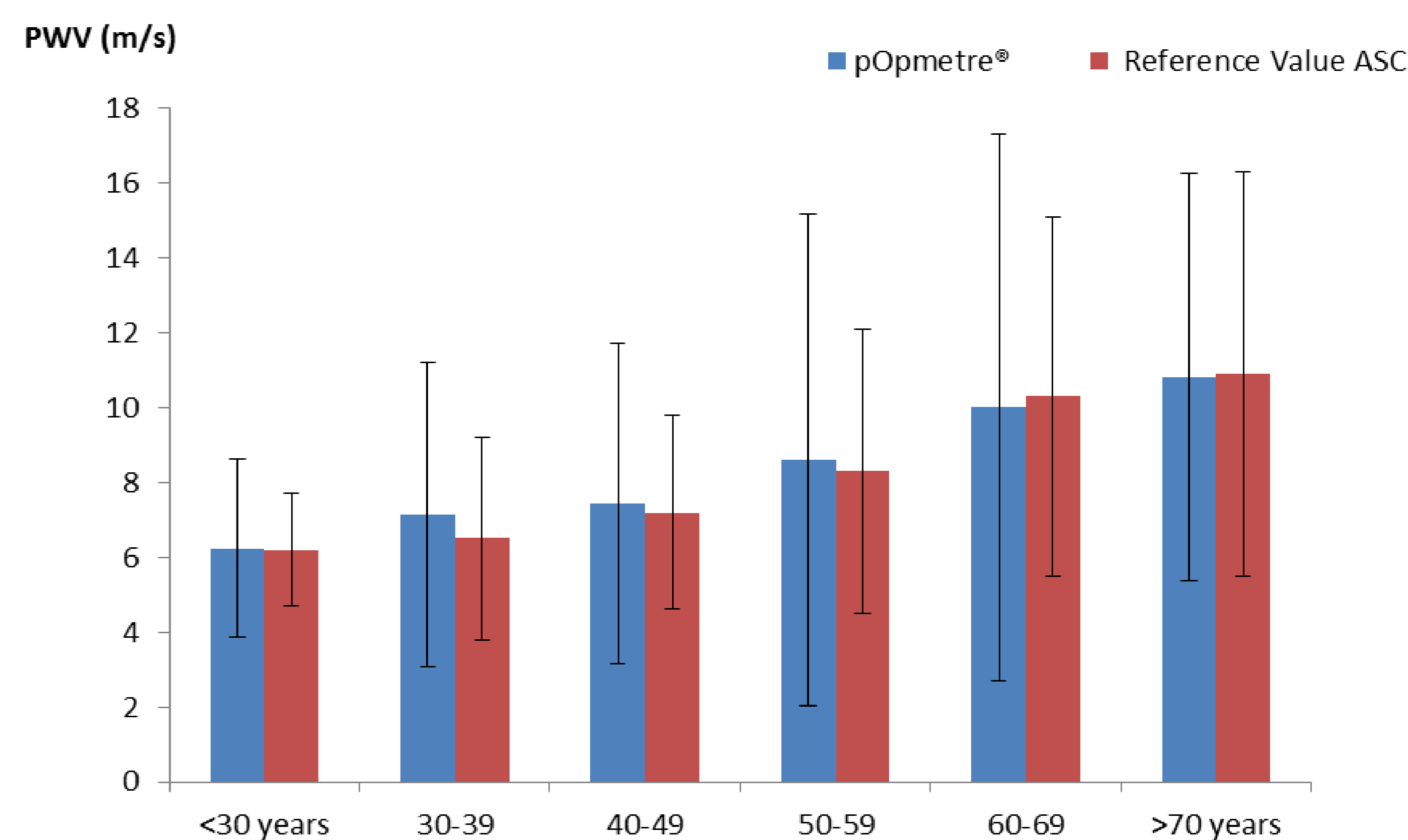
## RESULTS

To explore the validity of the method, we planned to evaluate the number of subjects with a PWV <to 4 m/s or >25 m/s or a variation coefficient of PWV >30%. This evaluation concern 396 recordings between January 2016 and April 2016. Among these recording 10 subjects (2.5%) corresponding to these criteria were not considered in the analysis

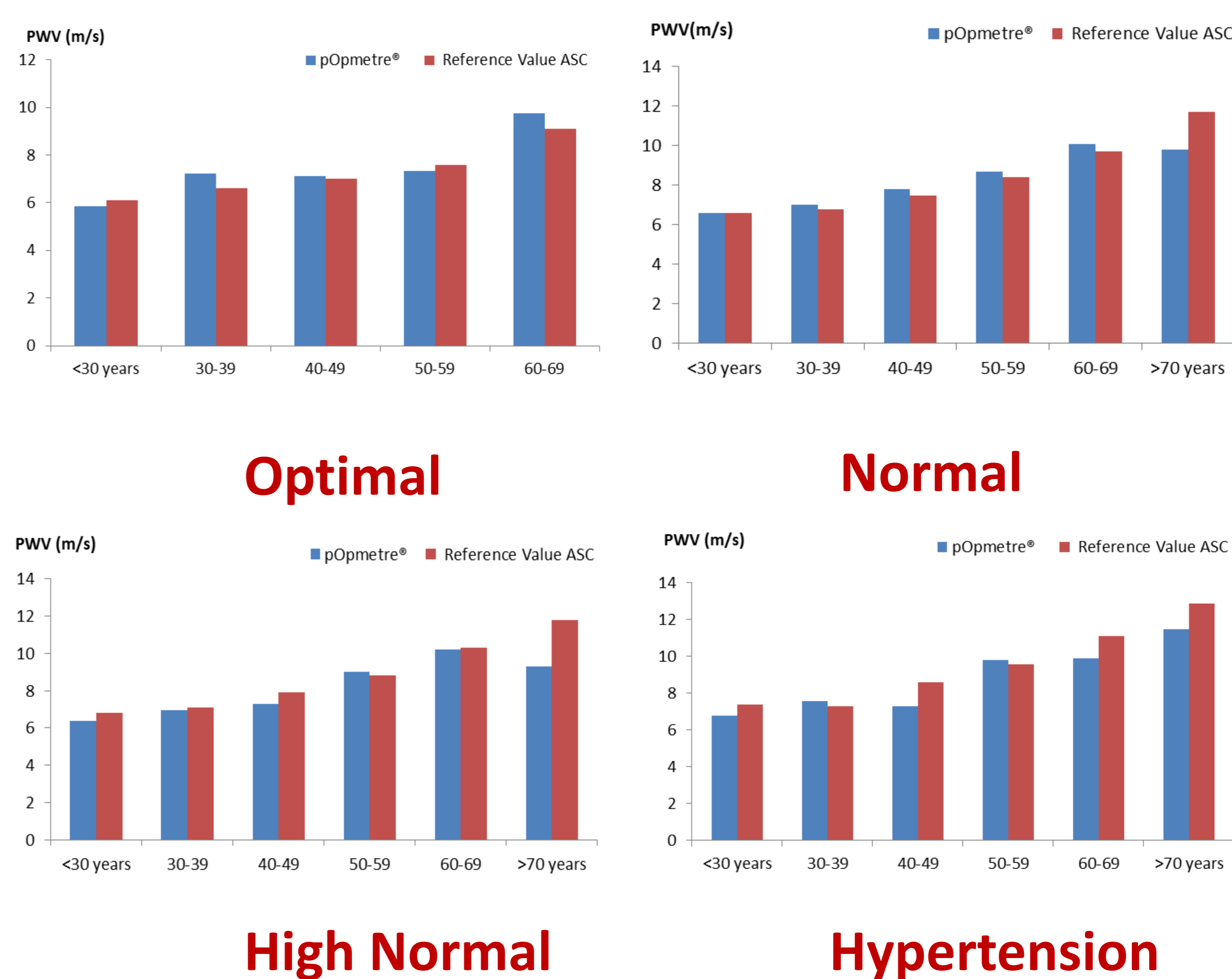
**Table : Means (sd) of PWV (m/s) according to age for pOpmetre® and PWV reference values**

	N (pOpmetre®)	pOpmetre®	Reference value ASC
<30 years	123	6.2 (1.2)	6.2 (0.6)
30-39	106	7.1 (2.0)	6.5 (1.1)
40-49	126	7.4 (2.1)	7.2 (1.0)
50-59	153	8.6 (3.3)	8.3 (1.5)
60-69	114	10 (3.7)	10.3 (1.9)
>70 years	21	10.8 (2.7)	10.9 (2.2)

**Figure 1: Means (±2Sd) of PWV (m/s) according to age for pOpmetre® and PWV reference values**



**Figure 2: Means of PWV (m/s) according to age and Blood pressure categories for pOpmetre® and PWV reference values**



## COMMENTS AND CONCLUSION:

The very simple and quick measurement of finger to toe arterial stiffness with the pOpmetre® device, can be performed by nurses with a tight leaning curve (1 hour) during a tight time schedule. It provides values for normotensives within Aortic Reference value ranges. It appears as a promising substitute to reference techniques with the advantage of simplicity for assessing PWV during standard health check-up.

**Réf : The Reference Values for Artery Stiffness Collaboration . Eur Heart J, 2010; 31, 2338–2350**

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