

Clinical Pulse Wave Velocity: from discrete evaluation towards continuous monitoring approach

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The assessment of arterial stiffness, estimated by measuring Pulse Wave Velocity (PWV), has demonstrated its independent role in predicting cardiovascular mortality, as well as its close association with cardiovascular damage. Despite this importance, PWV usage struggles to spread in clinical practice for two main reasons: the cost of the instruments and the time required for its measurement. In our research, we have been focused on the realization of a new reliable and low-cost device for the non-invasive PWV assessment. Thanks to a good result achieved and ad-hoc software (subject of a patent), we can now continuously monitor the variation of this cardiovascular parameter. The topic of this symposium will regard the steps we are taking in the direction of having a wearable and remote solution that does not need the constant presence of a specialized clinician and will let to investigate PWV as direct retroactive control of the subject's state of health. This innovation, along with the investigation of several wearable sensors (e.g., acoustic, pressure), their electronic conditioning circuits, and digital processing, will be treated in detail (and discussed together).