SOP number	**17.015**	Version	**5.0**
Title	**Measurement of Pulse Wave Analysis (PWA) and Pulse Wave Velocity (PWV)**		

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SOP category	17 NHS GG&C Clinical Research Facility – Clinical				
Staff category	**Staff Category**	**R**	**A**	**C**	**I**
	Nursing	X			
	Principal Investigator	X			
	Clinical Research Fellow	X			
	GCRF Manager		X		
	GCRF Associate Director				X
	Senior R&I Manager				X

1. Scope

This procedure applies to all staff working within Glasgow Clinical Research Facility (GCRF).

2. Purpose

This Standard Operating Procedure (SOP) describes the correct procedure for the measurement of Pulse Wave Analysis (PWA) and Pulse Wave Velocity (PWV) within GCRF.

3. Procedures

Pulse Wave Analysis (PWA) is a non-invasive test used to phenotype the peripheral vascular system and calculate cardiovascular risk. Carotid-femoral pulse wave velocity (PWV) is a method for measurement of arterial stiffness.

Equipment used will be dependent upon study specific requirements.

3.1. Preparation

- Equipment used will be study specific – please refer to user manual guides
- Where possible, the subject should be supine in a temperature-controlled room (24-26°) for 10-30 minutes prior to taking any recordings (specific requirements should be documented in the study guidelines).
- Loosen clothing around femoral artery to allow identification of pulse wave.
- Ensure patient comfort and dignity at all times

3.2. Measurement

- Locate the sternal notch
- Locate the carotid pulse
- Locate the radial/femoral pulse (if required by study specific guidelines)
- Measure from carotid pulse to sternal notch
- Measure from radial/femoral pulse to sternal notch (if required by study specific guidelines)
- Measure from carotid pulse to femoral pulse (if required by study specific guidelines)
- Measure from femoral pulse to top of BP cuff around thigh (if required by study specific guidelines)
- Record measurement in millimetres into machine software

3.3. Recording Measurements

- Enter patient demographics and study specific details
- Enter operators initials
- Capture data and save according to manufacturer's guidelines

3.4. Quality Control

The report provides a quality control operator index to measure pulse-to-pulse variability over the recording period. The software determines if the measurement is valid based on predefined variability parameters. The quality control indicator should be assessed prior to accepting the quality of the report. If the quality control indicator displays a red cross the measurement must be repeated until the required two compliant measurements are obtained.

3.5. Cleaning of Equipment

Equipment should be cleaned following each use according to NHS GG&C policies and manufacturers guidelines.

4. Referenced documents

- SphygmoCor System Operators Manual
- SphygmoCor PWA /PWV Software Guide
- SphygmoCor XCEL Operators Manual

5. Related documents

None

6. Document history

Version	Date	Description
1.0	30/09/09	Release of Version 1
2.0	30/06/14	Minor changes to provide clearer guidance on the process for undertaking procedure. Change of author
3.0	15/07/16	SOP restructure

Version	Date	Description
		Minor admin changes Change released by
4.0	10/12/19	Periodic review Standarisation of SOP to support the use of additional equipment
5.0	18/08/2023	Update to SOP template v2.0 Addition of RACI matrix Addition of carotid pulse to femoral pulse measurement