1. Cuff BP+ measurement acquired at 200Hz
2. Xml file produced for each individual BP measurement from start of inflation to end of deflation (i.e., BPplus\_0001.xml)
   1. Folders 0000 to 000n contain the xml files from each cuff measurement that will be used for the analysis.
3. Isolate the cuff BP deflation curve signal from maximal inflation to end of deflation –recorded in arbitrary units
4. Isolate the segment within the cuff BP deflation curve where the pressure pulsations are located
5. Subtract the estimated baseline from the cuff BP deflation curve signal to obtain the baseline-corrected signal of the deflating curve for the pressure pulsation segment
6. Undertake quality control of deflating cuff BP signal and remove pressure pulsations with error from motion artefacts or arrhythmias, as per Bothe et al 2023
7. Identify individual beats from the isolated cuff BP deflation curve by locating the foot of the waveforms
8. Extract and number individual beats (e.g. from 1 to 10 ….) from the isolated cuff BP deflation curve
9. Undertake analysis of individual beats to identify the augmentation index
10. Repeat for all individual beats

Figure – Algorithm flow chart – Steps taken to produce a cuff BP+ meaurement for individuals. Xml file was produced for each individual BP measurement. Analysis of the cuff BP delation curve signal for indentification of individual beats from the pressure pulsations. Analysis of individual beats for identification of the augmentation index for identification of beat with highest concordance with intra-arterial BP measurements. Steps were repeated for each participant.

Bothe TL, Bilo G, Parati G, Haberl R, Pilz N, Patzak A. Impact of oscillometric measurement artefacts in ambulatory blood pressure monitoring on estimates of average blood pressure and of its variability: a pilot study. Journal of Hypertension. 2023;41(1):140-9.

Subtract the estimated baseline from the cuff BP deflation curve signal to obtain the baseline-corrected signal of the deflating curve for the pressure pulsation segment

Isolate the segment within the cuff BP deflation curve where the pressure pulsations are located

Extract and number individual beats (e.g. from 1 to 10 ….) from the isolated cuff BP deflation curve

Repeat for all individual beats

Undertake analysis of individual beats to identify the augmentation index

mentation index of the waveform

Folders 0000 to 000n contain the xml files from each cuff measurement that will be used for the analysis.

Figure – Algorithm flow chart – Steps taken to produce a cuff BP+ meaurement for individuals. Xml file was produced for each individual BP measurement. Analysis of the cuff BP delation curve signal for indentification of individual beats from the pressure pulsations. Analysis of individual beats for identification of the augmentation index for identification of beat with highest concordance with intra-arterial BP measurements. Steps were repeated for each participant.

Reference:

Bothe TL, Bilo G, Parati G, Haberl R, Pilz N, Patzak A. Impact of oscillometric measurement artefacts in ambulatory blood pressure monitoring on estimates of average blood pressure and of its variability: a pilot study. Journal of Hypertension. 2023;41(1):140-9.

Identify individual beats from the isolated cuff BP deflation curve by locating the foot of the waveforms

Undertake quality control of deflating cuff BP signal and remove pressure pulsations with error from motion artefacts or arrhythmias, as per Bothe et al 2023

Isolate the cuff BP deflation curve signal from maximal inflation to end of deflation

Cuff BP+ measurement acquired at 200Hz

Xml file produced for each individual BP measurement from start of inflation to end of deflation (i.e. BPplus\_0001.xml)