

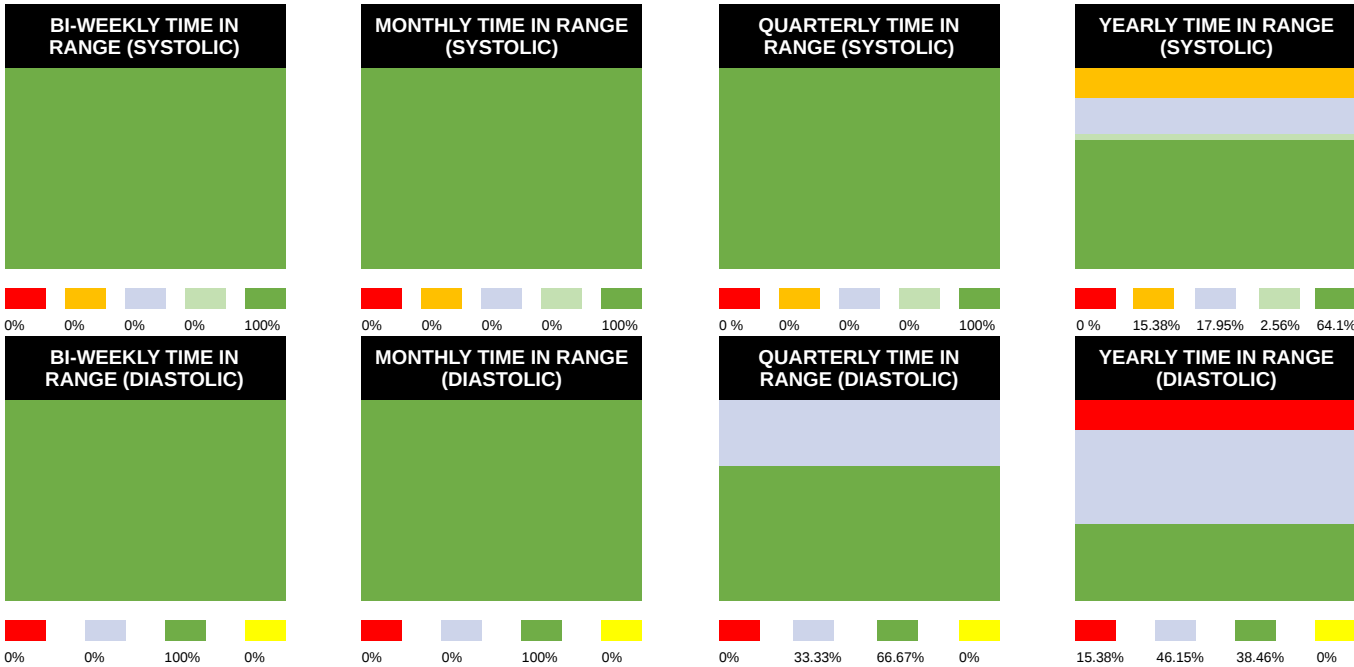


40 Mitchell Ave, Binghamton, NY 13903 Phone:(607) 723-1676

Patient Name: Heather Fitzgerald
Height: 5.03

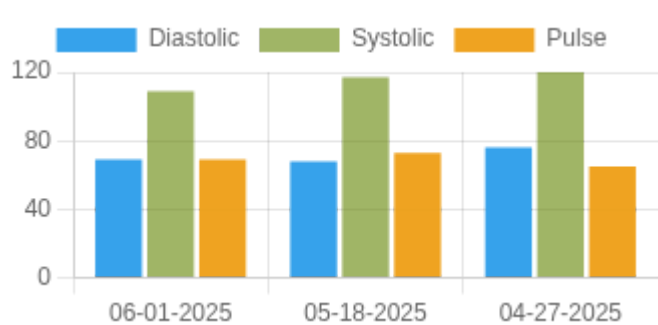
MRN #: 8075
Weight: 153

Birth Year:
Hypertension: S1



Blood Pressure Averages

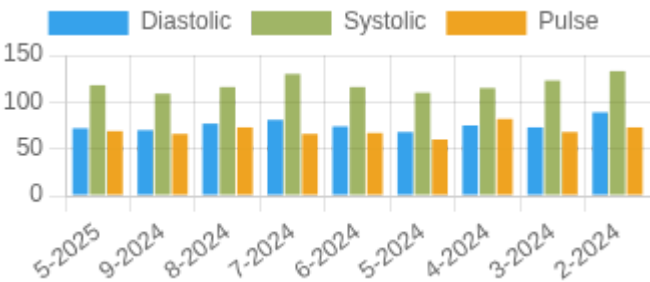
Blood Pressure Averages: Weekly



Week	Systolic(n)	Diastolic(n)	Pulse(n)
06-01-2025	109 (1)	69 (1)	69 (1)
05-18-2025	117 (1)	68 (1)	73 (1)
04-27-2025	120 (1)	76 (1)	65 (1)

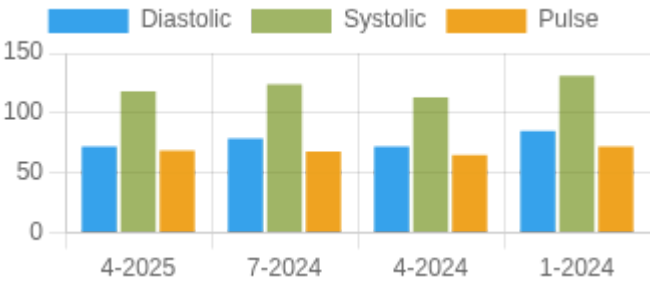
Blood Pressure Averages: Monthly

Month-Year	Systolic(n)	Diastolic(n)	Pulse(n)
5-2025	118 (2)	72 (2)	69 (2)
9-2024	109 (2)	70 (2)	66 (2)
8-2024	116 (7)	77 (7)	73 (7)
7-2024	130 (16)	81 (16)	66 (16)



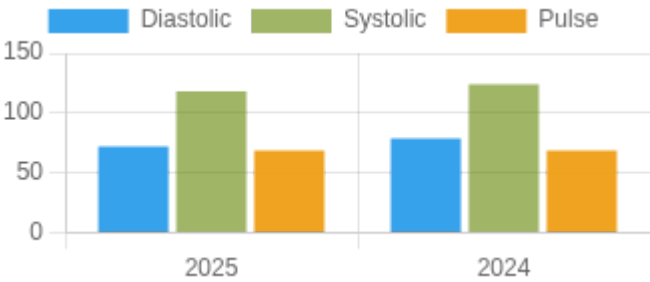
6-2024	116 (16)	74 (16)	67 (16)
5-2024	110 (13)	68 (13)	60 (13)
4-2024	115 (2)	75 (2)	82 (2)
3-2024	123 (10)	73 (10)	68 (10)
2-2024	133 (34)	89 (34)	73 (34)

Blood Pressure Averages: Quarterly



Quarter-Year	Systolic(n)	Diastolic(n)	Pulse(n)
4-2025	118 (2)	72 (2)	69 (2)
7-2024	124 (25)	79 (25)	68 (25)
4-2024	113 (31)	72 (31)	65 (31)
1-2024	131 (44)	85 (44)	72 (44)

Blood Pressure Averages: Yearly



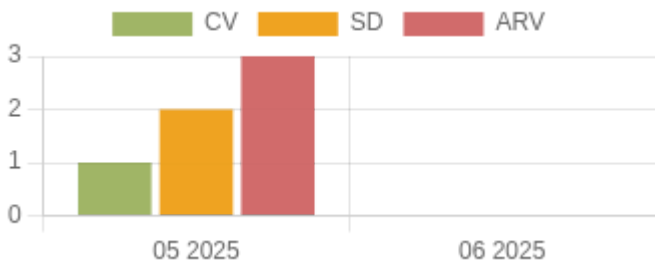
Year	Systolic(n)	Diastolic(n)	Pulse(n)
2025	118 (2)	72 (2)	69 (2)
2024	124 (100)	79 (100)	69 (100)

Chat

Sender	Receiver	Messege	Date&Time
Heather Fitzgerald	R.A. Ramanujan , M.D.	and o have one kidney	11-06-2025
Heather Fitzgerald	R.A. Ramanujan , M.D.	Have a nice night!	11-06-2025
Heather Fitzgerald	R.A. Ramanujan , M.D.	I know I don't have diabetes, sleep apnea or cardio vascular disease- yet. My dad and his 4 siblings were all dead before they got to my age due to cardiovascular disease.	11-06-2025
Heather Fitzgerald	R.A. Ramanujan , M.D.	Would you consider calling me in the script because my BMI is 28 and I have high blood pressure, high cholesterol and metabolic syndrome. They might cover it and if they do not, I'll feel good that we tried.	11-06-2025
Heather Fitzgerald	R.A. Ramanujan , M.D.	I did not come to my appointment today looking for a GLP or that miserable with my weight, but now I want to go on one so I can lose 10-15lbs. Losing weight would improve all my risk factors. I am discouraged it is not used preventatively.	11-06-2025
Heather Fitzgerald	R.A. Ramanujan , M.D.	Thanks so much for clarifying. I appreciate it.	26-05-2025
R.A. Ramanujan , M.D.	Heather Fitzgerald	Hello Heather, Sorry for not making clear in my last message. You may keep the dose at 20 mg and go up to 40 mg if the BP creeps up. Best	26-05-2025

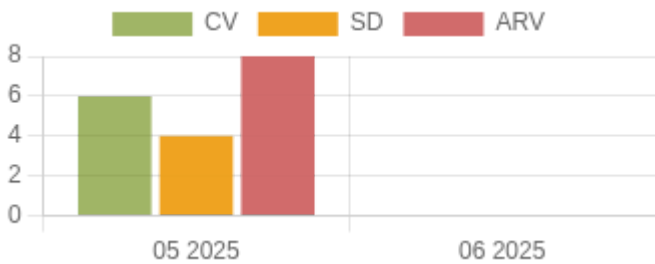
Heather Fitzgerald	R.A. Ramanujan , M.D.	Thank You! 😊	26-05-2025
R.A. Ramanujan , M.D.	Heather Fitzgerald	Vyvanse can make you loose weight and possibly keep BP down. Yes to your plan.	26-05-2025
Heather Fitzgerald	R.A. Ramanujan , M.D.	I have a question- I normally take 1/2 of my Edarbi 40. the day I took the Vyvanse I took the whole pill. Do you recommend I track my BP and continue to take Edarbi 40 mg or 20 mg?	26-05-2025
Heather Fitzgerald	R.A. Ramanujan , M.D.	Thank you.	26-05-2025
R.A. Ramanujan , M.D.	Heather Fitzgerald	Vyvanse effect on BP is variable. In the majority it either neutral or lower it. BP surge in select group. Try to upload BP to track trending average. Best	26-05-2025
Heather Fitzgerald	R.A. Ramanujan , M.D.	my primary, FNP just switched me to Vyvanse 40 mg per my request. I just wanted to keep you in the loop because you prescribe me the Edarbi. I feel good. enjoy your Sunday.	25-05-2025
Heather Fitzgerald	R.A. Ramanujan , M.D.	Hi Carlie & Nurse, I took my first dose of Vyvanse (40 mg) yesterday at 6:45 AM and also took the full 40 mg dose of Edarbi (I usually only take 20 mg). I wanted to share how the day went and get your guidance as I move forward. 6:45 AM: Vyvanse 40 mg 7:30 AM: Edarbi 40 mg BP readings: 7:15 AM – 138/81 9:15 AM – 161/98 10:30 AM – 125/92 1:20 PM – 121/80 6:00 PM – 137/89 8:00 PM – 104/68 I didn't eat much during the day—just a mozzarella stick until dinner—which wasn't intentional. We had just returned from vacation and didn't have groceries. I also noticed that the Vyvanse suppressed my appetite. I've since restocked and will be sure to eat consistently moving forward. I felt okay overall but was surprised by the BP fluctuations, especially the spike mid-morning and the drop later. I'd really like to continue Vyvanse, as I'm hopeful about the benefits, but I want to make sure I'm using it safely and at the right dose—especially in combination with Edarbi. Tomorrow I plan to go back to my usual 20 mg Edarbi and hold Vyvanse unless you recommend otherwise. Thanks so much for your help, Heather Fitzgerald	25-05-2025

Systolic Variability Trends

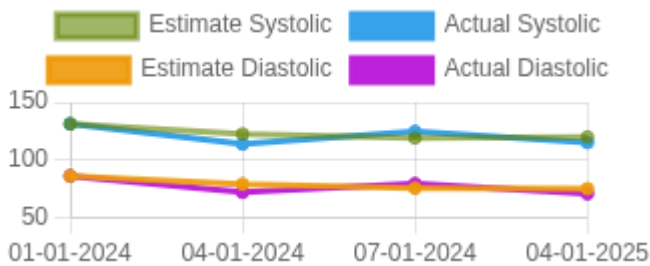


- 1. **CV** –The coefficient of variation (CV) is the ratio of the standard deviation to the mean. The higher the coefficient of variation, the greater the level of dispersion around the mean, Units = mmHg.
- 2. **ARV** – Average real variability (ARV) is a method for measuring short-term, reading-to-reading, within-subject variability. It is defined as the average of the absolute differences between consecutive readings, Units = mmHg.
- 3. **SD** – Standard deviation is a statistical measurement of variability. It measures how much variation there is from the average (mean), Units = mmHg.

Diastolic Variability Trends

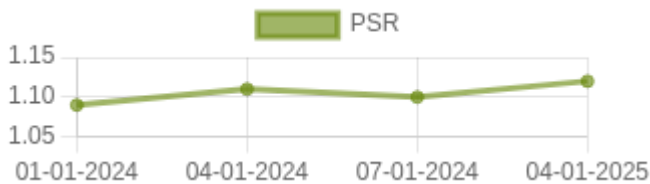


Kalman Trends



- 1. **Mean(Arithmetic Mean)** – Mean is the average of a set of numbers
- 2. **SD** – Standard deviation is a statistical measurement of variability. It measures how much variation there is from the average (mean).
- 3. **V**- Variance determines the spread of numbers.. It measures how far each number in the set is from the mean (average) and from every other number in the set.

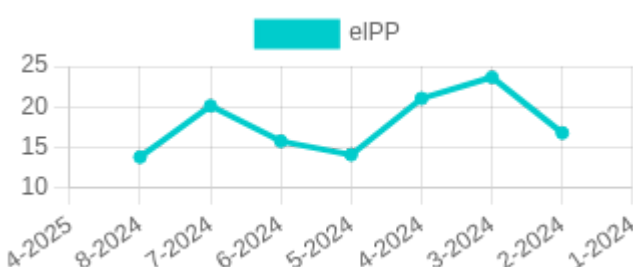
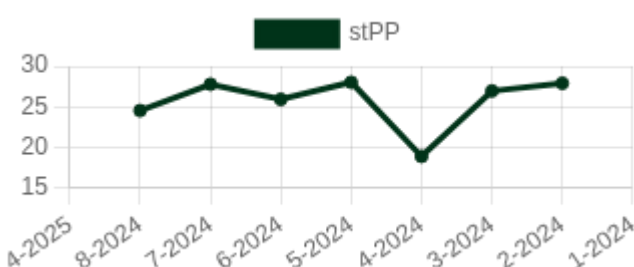
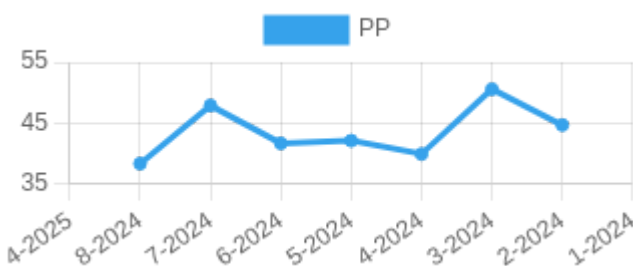
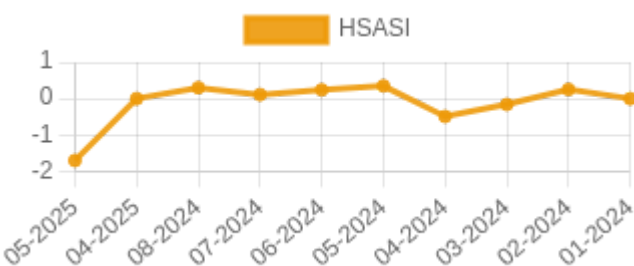
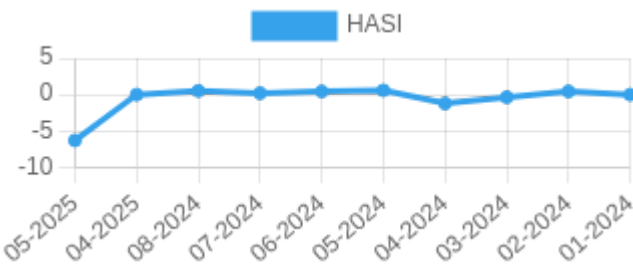
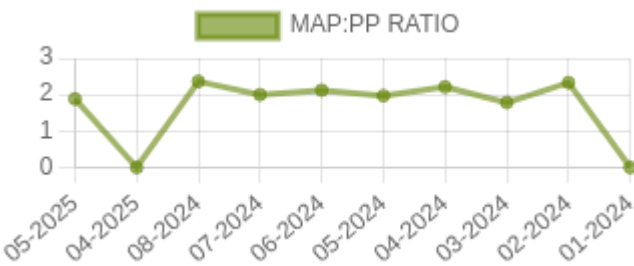
PSR

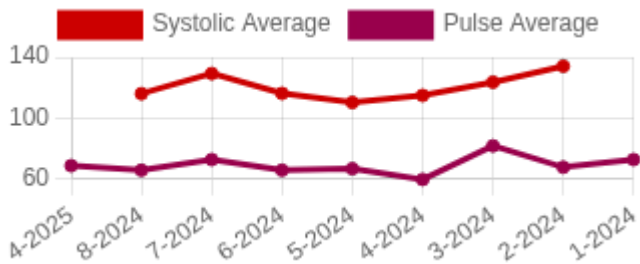


PSR: Pulse stiffening ratio (PSR) is the ratio between systolic and diastolic stiffness. It can be expressed as $PSR = \frac{[systolic\ stiffness]}{[diastolic\ stiffness]}$.

HbA1c Trends

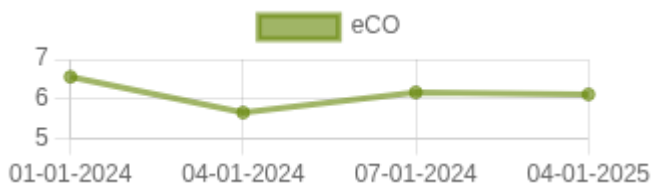
Others Trends





1. **MAP:PP Ratio**- Mean Arterial Pressure : Pulse Pressure Ratio
2. **HASI**- Home arterial stiffening index
3. **HSASI**- Home Symmetric arterial stiffening index
4. **PP**- Pulse Pressure
5. **WIF or widening factor number**. $WIF = K - 1 / \ln(K) - 1$, where K is the variability ratio ($K = \text{Systolic Std. Dev} / \text{Diastolic Std. Dev}$)
6. **eIPP**- Elastic component of pulse pressure. $eIPP = (PP - stPP)$
7. **stPP**- Stiffening component of pulse pressure. $stPP = PP / (1 + WIF)$

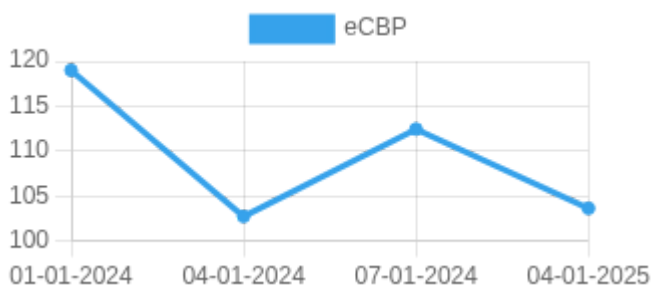
eCO graph



eCO (Estimated Cardiac Output) Normal range to be added 5 – 10 liters/minute

Units of eCO (Estimated Cardiac Output) – liters/minute

eCBP graph

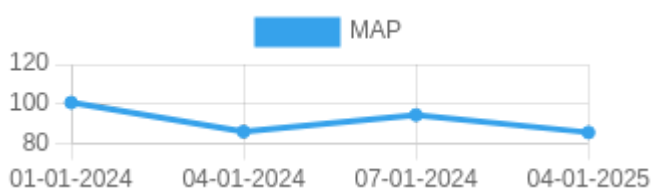


eCBP (Estimated Central Blood Pressure) normal range – 0 – 100 mmHg

1. Cardiac output scale is in liters/minute. Normal range at rest is 5-6 liters/min and (with activity goes up to 30 -35 liters/min)

2. Central mean BP is Squared, Mean radial artery BP/diastolic BP in mmHg. Scale in mmHg and range is in mmHg and the scale Should be between 0-50 50-100, 150 and 200 mmHg. No established normal at the moment.

MAP graph



MAP -Mean arterial blood pressure. $MAP = \text{Diastolic blood pressure} + 1/3(\text{Systolic blood pressure} - \text{Diastolic blood pressure})$

Reference & Abbreviations

Guide to abbreviations and blood pressure, pulse and other Metrics.

HBPM -Home blood pressure measurement.	HBS -Home blood sugar
PP -Pulse pressure	AP -Average pulse
BPV -Blood pressure variability	SV -Systolic variability
DV -Diastolic variability	PV -Pulse variability
ARV -Average real variability	CV -Coefficient of variation %
SD -Standard deviation	MAP -Mean arterial blood pressure
MAP: PP Mean Arterial Pressure : Pulse Pressure	HASI -Home arterial stiffness index
HSASI -Home Symmetric arterial stiffness index	Estimated CO -Cardiac output [CO=(PPxHR)x.002]
PSR Pulse stiffening ratio. (PSR = SBP/DBP or slope of systolic BP/slope of diastolic BP)	

Estimated central blood pressure ECBP (ECBP = brachial MBP2/brachial DBP or ECBP = radial MBP2/radial DBP)

Normal Ranges.

Systolic BP 110 – 120 mm Hg

Diastolic BP 70 – 80 mmHg

Pulse 60 - 100/min

Pulse pressure (PP) 40 mmHg (Low PP less than 25% of the systolic BP and high PP greater than 100 mm Hg)

Normal stroke volume (SV) 60 -100 ml

Cardiac output (CO) SV x pulse rate/min

Estimate Cardiac output = Stroke volume / m

Blood pressure variability; Not defined in USA. But desirable ranges ESH guidelines; Systolic day time BP less than 15 mmHg and Diastolic less than 7.9 mmHg and Weighted SD less than 12.8 mmHg for systolic

Definitions.

MAP:PP ratio not defined.

Pulse stiffening ration; Not defined. Pulse pressure * inverse log (std. dev. systolic / std. dev. Diastolic) / (std. dev. systolic / std. dev. Diastolic) - 1 (Pulse pressure X ln (K)/(K-1) where K is systolic Sd /diastolic SD.)

Home arterial stiffness index; Not defined

Home arterial symmetric arterial index: Not defined.

Central blood pressure:Not defined

References.

MAP;
Chemla D, Antony I, Zamani K, Nitenberg A. Mean aortic pressure is the geometric mean of systolic and diastolic aortic pressure in resting humans. J Appl Physiol (1985). 2005 Dec;99(6):2278-84. doi: 10.1152/jappphysiol.00713.2005. Epub 2005 Jul 28. PMID: 16051709. Tien LYH, Morgan WH, Cringle SJ, Yu DY. Optimal Calculation of Mean Pressure From Pulse Pressure. Am J Hypertens. 2023 May 21;36(6):297-305. doi: 10.1093/ajh/hpad026. PMID: 36945835; PMCID: PMC10200551.

PSR:

Gavish B, Izzo JL Jr. Arterial Stiffness: Going a Step Beyond. Am J Hypertens. 2016 Nov 1;29(11):1223-1233. doi:

10.1093/ajh/hpw061. PMID: 27405964.

DCBP:

Chemla D, Millasseau S, Hamzaoui O, Teboul JL, Monnet X, Michard F, Jozwiak M. New Method to Estimate Central Systolic Blood Pressure From Peripheral Pressure: A Proof of Concept and Validation Study. *Front Cardiovasc Med*. 2021 Dec 15;8:772613. doi: 10.3389/fcvm.2021.772613. PMID: 34977186; PMCID: PMC8714848.

CO

Koenig J, Hill LK, Williams DP, Thayer JF. Estimating cardiac output from blood pressure and heart rate: the liljestrand& zander formula. *Biomed Sci Instrum*. 2015;51:85-90. PMID: 25996703; PMCID: PMC5317099.

BP

Mean arterial blood pressure;

Guidelines recommend less than 125 mmHg Poon LC, Shennan A, Hyett JA, Kapur A, Hadar E, Divakar H, McAuliffe F, da Silva Costa F, von Dadelszen P, McIntyre HD, Kihara AB, Di Renzo GC, Romero R, D'Alton M, Berghella V, Nicolaides KH, Hod M. The International Federation of Gynecology and Obstetrics (FIGO) initiative on pre-eclampsia: a pragmatic guide for first-trimester screening and prevention. *Int J*

GynaecolObstet 2019;

145(Suppl 1):1–33. Not defined in general (desirable MAP ,90 mm Hg) Melgarejo JD, Yang WY, Thijs L, Li Y, Asayama K, Hansen TW, Wei FF, Kikuya M, Ohkubo T, Dolan E, Stolarz-Skrzypek K, Huang QF, Tikhonoff V, Malyutina S, Casiglia E, Lind L, Sandoya E, Filipovský J, Gilis-Malinowska N, Narkiewicz K, Kawecka-Jaszcz K, Boggia J, Wang JG, Imai Y, Vanassche T, Verhamme P, Janssens S, O'Brien E, Maestre GE, Staessen JA, Zhang ZY; International Database on Ambulatory Blood Pressure in Relation to Cardiovascular Outcome Investigators*. Association of Fatal and Nonfatal Cardiovascular Outcomes With 24-Hour Mean Arterial Pressure. *Hypertension*. 2021 Jan;77(1):39-48

We hope these complementary multiparametric data along with standard set used in daily practice helps to understand home blood pressure trend and other information they may potentially generate in the future to understand medication effects and patient management.

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