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

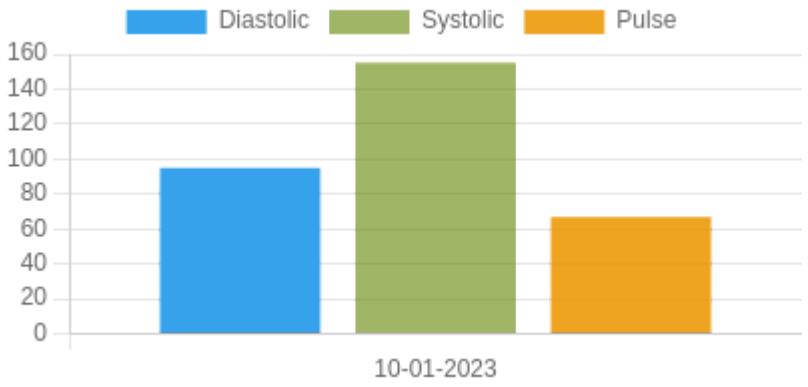
Patient Name: Kurt Ruhm
MRN #: 6896
Birth Year:
Height: 5.6
Weight: 196
Hypertension: S1

BI-WEEKLY TIME IN RANGE (SYSTOLIC)	MONTHLY TIME IN RANGE (SYSTOLIC)	QUARTERLY TIME IN RANGE (SYSTOLIC)	YEARLY TIME IN RANGE (SYSTOLIC)
100 %	100 %	100 %	100 %
0 %	0 %	0 %	0 %

Systolic Range (<125 mmHg)

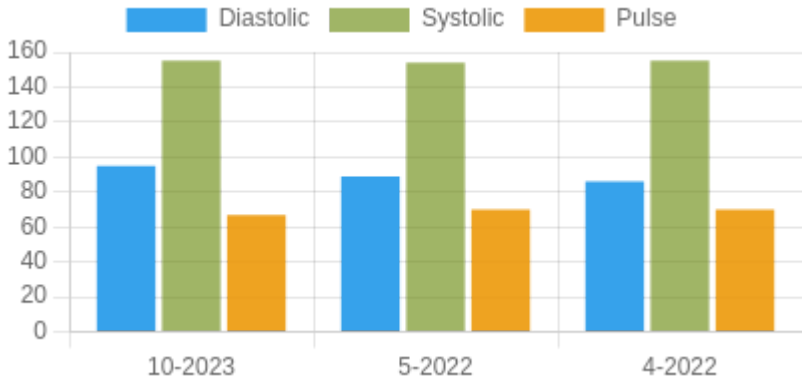
Blood Pressure Averages

Blood Pressure Averages: Weekly



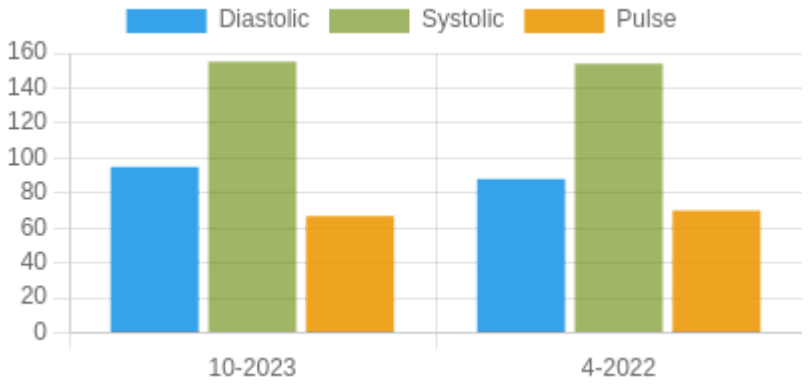
Week	Systolic(n)	Diastolic(n)	Pulse(n)
10-01-2023	155 (2)	95 (2)	67 (2)

Blood Pressure Averages: Monthly



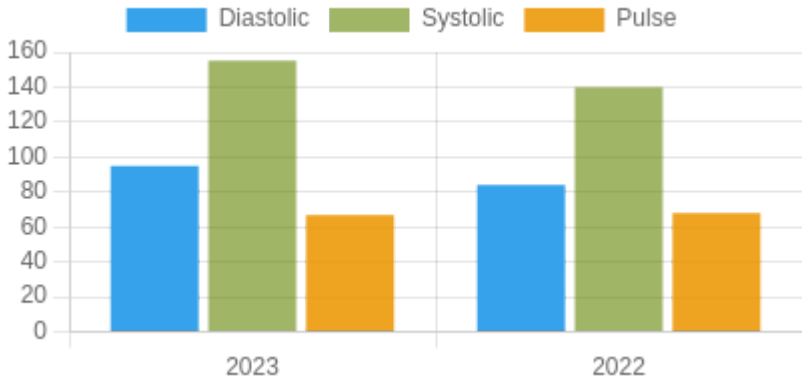
Month-Year	Systolic(n)	Diastolic(n)	Pulse(n)
10-2023	155 (2)	95 (2)	67 (2)
5-2022	154 (10)	89 (10)	70 (10)
4-2022	155 (6)	86 (6)	70 (6)

Blood Pressure Averages: Quarterly



Quarter-Year	Systolic(n)	Diastolic(n)	Pulse(n)
10-2023	155 (2)	95 (2)	67 (2)
4-2022	154 (16)	88 (16)	70 (16)

Blood Pressure Averages: Yearly



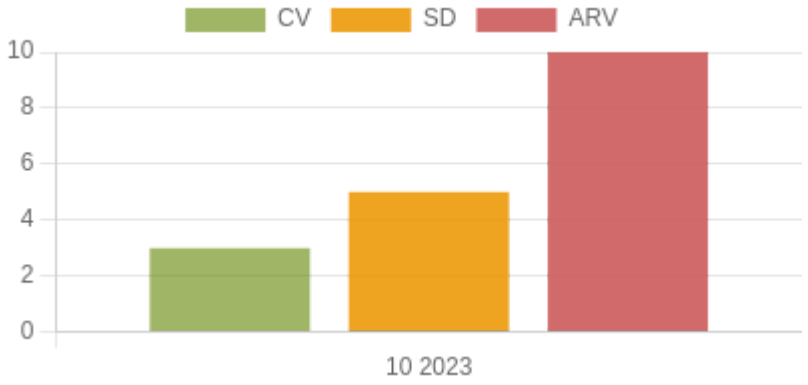
Year	Systolic(n)	Diastolic(n)	Pulse(n)

2023	155 (2)	95 (2)	67 (2)
2022	140 (29)	84 (29)	68 (29)

Blood Sugar Averages

Year	Before breakfast	2 hours after breakfast	Before lunch	2 hours after lunch	Before dinner	2 hours after dinner	Bedtime
01-01-2022		122(29)					

Variability Trends (Monthly)

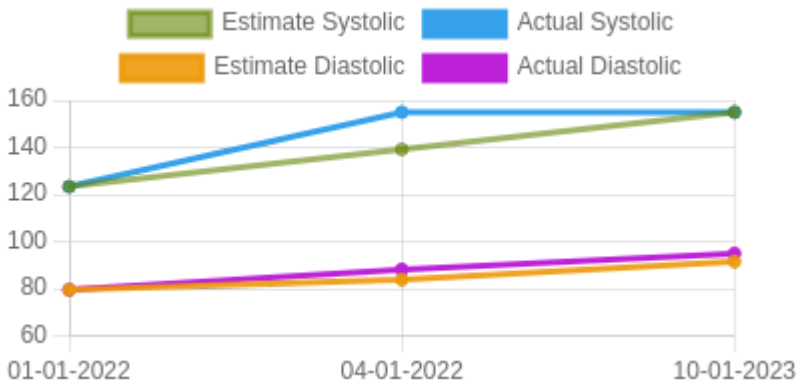


1. CV –The coefficient of variation (CV) is the ratio of the standard deviation to the mean. The higher the coefficient of variation, the greater the level of dispersion around the mean, Units = mmHg.

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.

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).

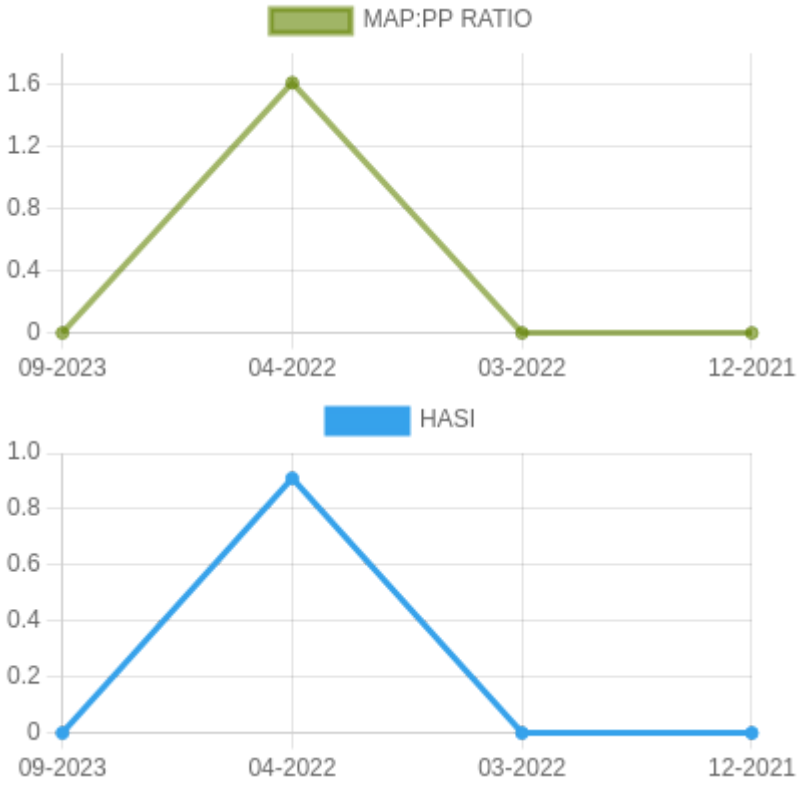
3. V- Variance determines the spread of numbers.. It measures how far each number in the set is from the mean (average) and from every other number in the set.

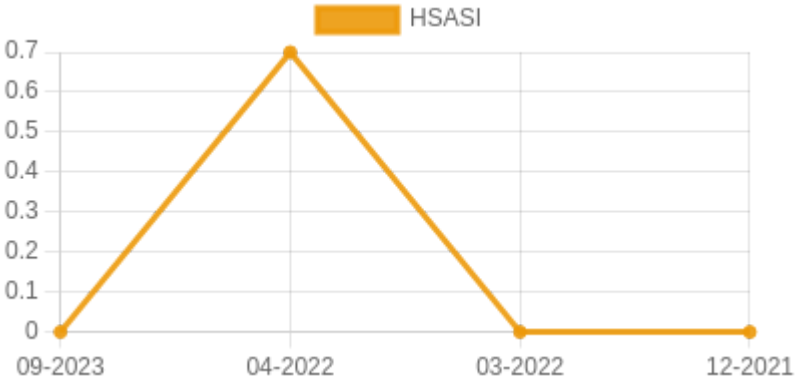
PSR

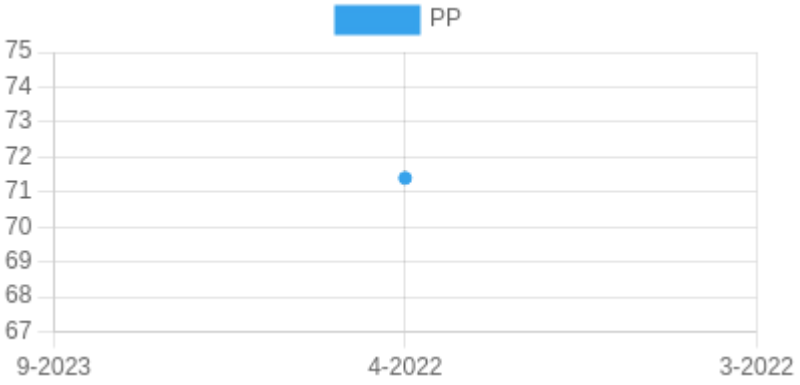
PSR: Pulse stiffening ratio (PSR) is the ratio between systolic and diastolic stiffness. It can be expressed as PSR = [systolic stiffness]/[diastolic stiffness].

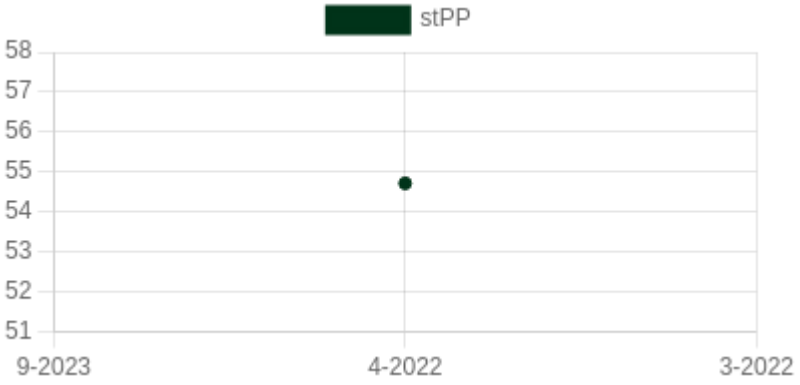
HbA1c Trends

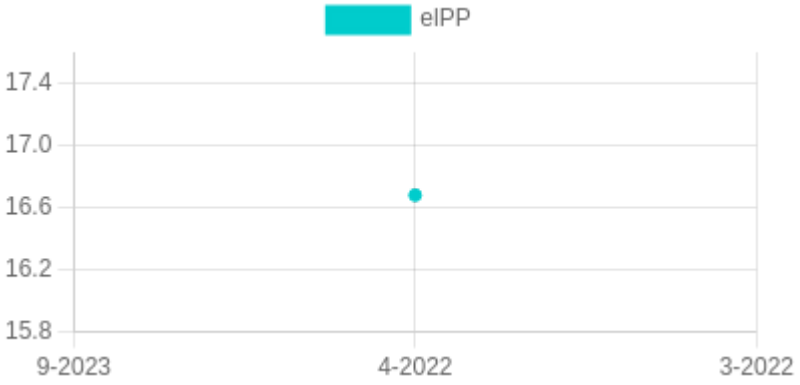
Others Trends

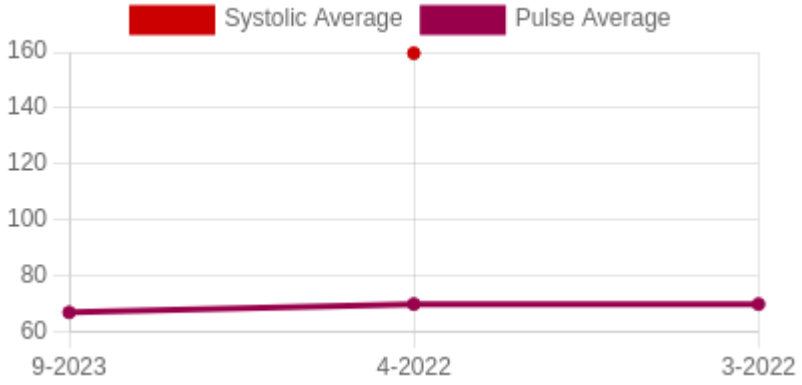



HSASI
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
09-2023
04-2022
03-2022
12-2021


PP
75
74
73
72
71
70
69
68
67
9-2023
4-2022
3-2022


stPP
58
57
56
55
54
53
52
51
9-2023
4-2022
3-2022


elPP
17.4
17.0
16.6
16.2
15.8
9-2023
4-2022
3-2022



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/In(K)-1, where K is the variability ratio (K = Systolic Std. Dev / Diastolic Std. Dev)

6. elPP- Elastic component of pulse pressure. elPP= (PP - stPP)

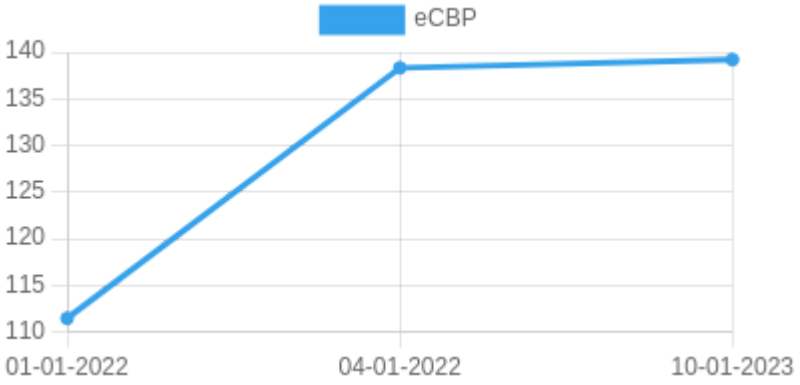
7. stPP- Stiffening component of pulse pressure. stPP= PP/(1+ WIF)

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

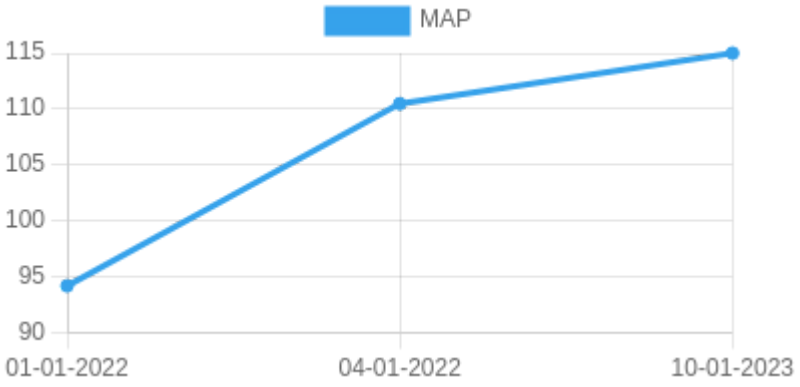


eCBP (Estimated Central Blood Pressure) normal range – 0 – 100 mmHg

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 = Diastolic blood pressure + 1/3(Systolic blood pressure – Diastolic blood pressure)

Reference & Abbreviations

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

HBPM -Homme 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 In (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/japplphysiol.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. FrontCardiovasc 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 andother information they may potentially generate in the future to understand medication effects and patient management.

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