

<div>Glucose</div> <div><div>Analytical Performance Specification</div><div>RCV Calculation</div></div>						
Matrix	BV Estimate	median CV estimate	lower CI limit	higher CI limit	Comments	Date Updated
Serum/plasma	👤	5.0	4.1	12.0		21/9/2023
Serum/plasma	👥	8.1	2.7	10.8		21/9/2023

Colour Key for References

Included In Meta Analysis Not Included In Meta Analysis

Reference	Dataset	Estimate of CVI	Estimate of CVG	Gender	Age	State of Well Being	Matrix	Sampling Interval
<p>Biological and analytic components of variation in long-term studies of serum constituents in normal subjects. IV. Results of a study designed to eliminate long-term analytic deviations.</p> <p>Young DS, Harris EK and Cotlove E, Clin Chem, 403-10, 17, 1971</p> <p>View</p>	View	6.6	2.7	Males		Healthy	Serum	1 per Week
<p>Biological and analytic components of variation in long-term studies of serum constituents in normal subjects</p> <p>Harris EK, Kanofsky P, Shakarji G and Cotlove E, Clin Chem, 1022-7, 16, 1970</p> <p>View</p>	View	5.6	7.8	Mixed		Healthy	Serum	1 per Week
<p>Biological variation and reference change value of common clinical chemistry and haematologic laboratory analytes in the elderly population</p> <p>Pineda-Tenor D , Laserna-Mendieta EJ, Timon-Zapata J, Rodelgo-Jimenez L, Ramos-Corral R, Recio-Montealegre A and Gomez-Serranillos Reus M, Clin Chem Lab Med, 851-62, 51, 2013</p> <p>View</p>	View	3.7	8.8	Males		Healthy	Serum	1 per Week

Individual Character of

<div>Individual Character of Variation in Time-Series Studies of Healthy People II. Differences in Values for Clinical Chemical Analytes in Serum among Demographic Groups by Age and Sex</div> <div>Williams GZ, Widdowson GM and Penton J, Clin Chem, 313- 20, 24, 1978</div> <div>View</div>	6.9	8.1	Mixed	Healthy	Serum	1 per Week
<div>Short-term and long- term intra-individual variations and critical differences of clinical chemical laboratory parameters</div> <div>Costongs GMPJ, Janson PCW and Bas BM, J Clin Chem Clin Biochem, 7-16, 23, 1985</div> <div>View</div>	12.0		Mixed	Healthy	Serum	1 per Month
<div>Within subject biological variation of glucose and HbA1c in healthy persons and in type 1 diabetes patients</div> <div>Carlsen S, Petersen PH, Skeie S, Skadberg O and Sandberg S, Clin Chem Lab Med, 1501-7, 49, 2011</div> <div>View</div>	4.5	5.8	Mixed	Healthy	Capillary plasma	1 per Week
<div>Within subject biological variation of glucose and HbA1c in healthy persons and in type 1 diabetes patients</div> <div>Carlsen S, Petersen PH, Skeie S, Skadberg O and Sandberg S, Clin Chem Lab Med, 1501-7, 49, 2011</div> <div>View</div>	5.4	5.6	Mixed	Healthy	Serum	1 per Week
<div>La variabilidad biológica intraindividual como objeto de calidad analítica</div> <div>Ricós C, Codina R, Rev Diag Biol, 34-6, 38, 1989</div> <div>View</div>	10.8		Mixed	Healthy	Serum	1 per Day
<div>The EuBIVAS: within- and between-individual</div>						

and between-subject biological variation data for electrolytes, lipids, urea, uric acid, total protein, total bilirubin, direct bilirubin and glucose

Aarsand AK, Diaz-Garzón J, Fernández-Calle P, et al, Clin Chem, 1380-93, 64(9), 2018

View

4.7

8.1

Mixed

Healthy

Serum

1 per Week

View

Variability of capillary plasma glucose in healthy individuals in repeated 75g oral glucose tolerance tests

Cummings ST and Fraser CG, Ann Clin Biochem, 634-7, 25, 1988

View

4.7

6.1

Mixed

Healthy

Capillary plasma

1 per Week

View

Biological variation and reference change value of common clinical chemistry and haematologic laboratory analytes in the elderly population

Pineda-Tenor D , Laserna-Mendieta EJ, Timon-Zapata J, Rodelgo-Jimenez L, Ramos-Corral R, Recio-Montealegre A and Gomez-Serranillos Reus M, Clin Chem Lab Med, 851-62, 51, 2013

View

4.5

7.5

Females

Healthy

Serum

1 per Week

View

Short-term, within-person variability in clinical chemistry test results

Eckfeldt J,Chambless LI and Shen Y, Arch Pathol Lab Med, 496-500, 118, 1994

View

4.2

10.8

Mixed

Healthy

Serum

14 per Day

View

Within subject biological variation of glucose and HbA1c in healthy persons and in type 1 diabetes patients

Carlsen S, Petersen PH, Skeie S, Skadberg O and Sandberg S, Clin Chem Lab Med, 1501-7, 49, 2011

View

30.5

16.8

Mixed

Non-healthy

Serum

1 per Week

View

<div>Estimate of biological variation of laboratory analytes based on the third National Health and Nutrition Examination Survey</div> <div><div>View</div><div>Lacher DA, Hughes JP and Carroll MD, Clin Chem, 450-2, 51, 2005</div></div>	12.5	Mixed	42.9	Healthy	Plasma	"No Sampling Intervals"
View						
<div>Short-term and long-term intra-individual variations and critical differences of clinical chemical laboratory parameters</div> <div><div>View</div><div>Costongs GMPJ, Janson PCW and Bas BM, J Clin Chem Clin Biochem, 7-16, 23, 1985</div></div>	7.9	Mixed		Healthy	Serum	1 per Day
View						
<div>Individual Character of Variation in Time-Series Studies of Healthy People II. Differences in Values for Clinical Chemical Analytes in Serum among Demographic Groups by Age and Sex</div> <div><div>View</div><div>Williams GZ, Widdowson GM and Penton J, Clin Chem, 313-20, 24, 1978</div></div>	6.3	6.7	Males	Healthy	Serum	1 per Week
View						
<div>Analytical and biological variability in biomarker measurement in the Hispanic Community Health Study/Study of Latinos</div> <div><div>View</div><div>Thyagarajan B, Howard AG, Durazo-Arvizu R, Eckfeldt JH, Gellman MD, Kim RS, Liu K, Mendez AJ, Penedo FJ, Talavera GA, Youngblood ME, Zhao L and Sotres-Alvarez D, Clin Chim Acta, 129-137, 463, 2016</div></div>	6.9	34.64	Females	Healthy	Serum	2 per Month
View						
<div>Biological variation and reference change value of common clinical chemistry and</div>						

chemistry and haematologic laboratory analytes in the elderly population	View	6.8	7.3	Females	80.0	Healthy	Serum	1 per Week
Pineda-Tenor D , Laserna-Mendieta EJ, Timon-Zapata J, Rodelgo-Jimenez L, Ramos-Corral R, Recio-Montealegre A and Gomez-Serranillos Reus M, Clin Chem Lab Med, 851-62, 51, 2013								
View								
Biological variation of glucose, insulin and lipids in lean, insulin-sensitie and obese, insulin-resistant chinese males without diabetes	View	3.4	6.2	Mixed		Non-healthy	Plasma	1 per Week
Rizi EP, Baig S, Toh SA and Khoo CM, Pathology , 510-2, 48, 2016								
View								
Analytical and biological variability in biomarker measurement in the Hispanic Community Health Study/Study of Latinos	View	26.0	37.21	Males		Healthy	Serum	2 per Month
Thyagarajan B, Howard AG, Durazo-Arvizu R, Eckfeldt JH, Gellman MD, Kim RS, Liu K, Mendez AJ, Penedo FJ, Talavera GA, Youngblood ME, Zhao L and Sotres-Alvarez D, Clin Chim Acta, 129-137, 463, 2016								
View								
Variabilità biologica intra-individuo: rassegna della letteratura, contributo sperimentale e considerazioni critiche	View	5.2		Mixed		Healthy	Serum	4 per Day
Chitto G, Fabi A, Franzini C, Galletta G, Leonardi A, Marelli M and Morelli AM, Biochim Clin, 673-690, 18, 1994								
View								
Pediatric within-day biological variation and quality spcifications for 38 biochemical markers in the CALIPER cohort	View	11.4	9.1	Mixed		Healthy	Plasma	4 per Day
Bailey D, Bevilacqua V, Colantonio DA, Pasic MD, Perumal N, Chen MK and Adeli								

Perumal N, Chan MK and Aden K, Clin Chem, 518-29, 60, 2014

View

Variabilità biologica ed analitica e differenza critica di 21 analiti “comuni”

Dimitri G, Bolner A and Gheller A, Biochim Clin, 401-3, 16, 1992

[View](#) 4.7 Mixed Healthy Serum 1 per Week

View

Biological variations of thirteen plasma biochemical indicators

Qi Z, Chen Y, Zhang L, Ma X, Wang F, Cheng Q, Du J, Hao Y, Chi S, Cui W, Clin Chim Acta, 87-91, 452, 2016

[View](#) 4.15 4.36 Mixed 46.0 Healthy Plasma 1 per Day

View

Biological variations of thirteen plasma biochemical indicators

Qi Z, Chen Y, Zhang L, Ma X, Wang F, Cheng Q, Du J, Hao Y, Chi S, Cui W, Clin Chim Acta, 87-91, 452, 2016

[View](#) 5.0 5.83 Mixed 46.0 Healthy Plasma 1 per Day

View

Indirect estimation of pediatric between-individual biological variation data from 22 common serum biochemistries

Loh TP and Metz MP, Am J Clin Pathol, 683-93, 143, 2015

[View](#) 10.0 16.8 Females Healthy Serum 6 per Month

View

Biological variation of laboratory analytes based on the 1999–2002 National Health and Nutrition Examination Survey

Lacher DA, Hughes JP and Carroll MD, Natl Health Stat Report , , 21, 2010

[View](#) 7.1 Mixed Healthy Plasma 1 per Other

View

Biological variation of laboratory analytes based on the 1999–2002 National Health and

<div><div>Nutrition Examination Survey</div><div>Lacher DA, Hughes JP and Carroll MD, Natl Health Stat Report , , 21, 2010</div><div>View</div></div>	<div><div>View</div></div>	<div><div>7.8</div></div>		<div><div>Mixed</div></div>	<div><div>Healthy</div></div>	<div><div>Plasma</div></div>	<div><div>1 per Other</div></div>
<div><div>Variability of capillary plasma glucose in healthy individuals in repeated 75g oral glucose tolerance tests</div><div>Cummings ST and Fraser CG, Ann Clin Biochem, 634-7, 25, 1988</div><div>View</div></div>	<div><div>View</div></div>	<div><div>11.2</div></div>	<div><div>11.1</div></div>	<div><div>Mixed</div></div>	<div><div>Healthy</div></div>	<div><div>Capillary plasma</div></div>	<div><div>1 per Week</div></div>
<div><div>Biological variability of 26 clinical chemistry analytes in elderly people</div><div>Fraser CG., Cummings ST., Wilkinson SP., Neville RG., Knox JDE, Ho O and MacWalter RS, Clin Chem, 783-6, 35, 1989</div><div>View</div></div>	<div><div>View</div></div>	<div><div>4.7</div></div>	<div><div>5.4</div></div>	<div><div>Males</div></div>	<div><div>Healthy</div></div>	<div><div>Serum</div></div>	<div><div>14 per Day</div></div>
<div><div>Indirect estimation of pediatric between-individual biological variation data from 22 common serum biochemistries</div><div>Loh TP and Metz MP, Am J Clin Pathol, 683-93, 143, 2015</div><div>View</div></div>	<div><div>View</div></div>	<div><div>8.5</div></div>	<div><div>16.2</div></div>	<div><div>Males</div></div>	<div><div>Healthy</div></div>	<div><div>Serum</div></div>	<div><div>6 per Month</div></div>
<div><div>Derivation of pediatric within-individual biological variation by indirect sampling method</div><div>Loh TP, Ranieri e and Metz MP, Am J Clin Pathol, 657-63, 142, 2014</div><div>View</div></div>	<div><div>View</div></div>	<div><div>12.2</div></div>		<div><div>Mixed</div></div>	<div><div>Healthy</div></div>	<div><div>Serum</div></div>	<div><div>4 per Month</div></div>
<div><div>Biological and analytic components of variation in long-term studies of serum constituents in normal subjects</div><div>Cotlove E, Harris EK and Williams GZ, Clin Chem, 1028-32, 16, 1970</div><div>View</div></div>	<div><div>View</div></div>			<div><div>Mixed</div></div>	<div><div>Healthy</div></div>	<div><div>Serum</div></div>	<div><div>1 per Week</div></div>

View									
Short-term biological variation of plasma analytes in renal disease									
Fraser CG, Williams P, Clin Chem, 508-10, 29, 1983	View	27.7	8.1	Males		Non-healthy	Plasma	"No Sampling Intervals"	
View									
Biological variation in glycated proteins									
Davie SJ, Whiting KL, Gould BJ., Ann Clin Biochem, 260-64, 30, 1993	View	12.1	3.2	Mixed		Healthy	Serum	2 per Day	
View									
Intra-individual variation: significant changes in parameters of lipid and carbohydrate metabolism in the individual and intra-individual variation in different test populations									
Godsland IF, Ann Clin Biochem, 618-24, 22, 1985	View	4.6		Mixed		Healthy	Plasma	1 per Week	
View									
Biological variation and reference change value of common clinical chemistry and haematologic laboratory analytes in the elderly population									
Pineda-Tenor D , Laserna-Mendieta EJ, Timon-Zapata J, Rodelgo-Jimenez L, Ramos-Corral R, Recio-Montealegre A and Gomez-Serranillos Reus M, Clin Chem Lab Med, 851-62, 51, 2013	View	5.5	8.2	Males	80.0	Healthy	Serum	1 per Week	
View									
Variability of capillary plasma glucose in healthy individuals in repeated 75g oral glucose tolerance tests									
Cummings ST and Fraser CG, Ann Clin Biochem, 634-7, 25, 1988	View	11.0	19.6	Mixed		Healthy	Capillary plasma	1 per Week	
View									

Total short-term variability in biomarkers of hyperglycemia in older adults

Parrinello CM, Lutsey PL, Couper D, Eckfeldt JH, Steffes MW, Coresh J and Selvin E, Clin Chem, 1540-1, 61, 2015

View

5.3

Mixed

76.0

Healthy

Plasma

6 per Week

View

Biological variaiton of glycohemoglobin.

Rohlfing C, Wiedmeyer HM, Little R, Grotz VL, Tennill A, England J, Madsen R, Goldstein D, Clin Chem, 1116-8, 48, 2002

View

5.7

5.8

Males

Healthy

Plasma

1 per Week

View

Biological variation of glucose, insulin and lípids in lean, insulin-sensitie and obese, insulin-resistant chinese males without diabetis

Rizi EP, Baig S, Toh SA and Khoo CM, Pathology , 510-2, 48, 2016

View

3.7

9.4

Mixed

Non-healthy

Plasma

1 per Week

View

Within- and between-subject variationin comoly measured anthropometricand biochemical variables.

Widjaja A, Morris RJ, Levy JC, Frayn KN, Manley SE and Turner RC, Clin Chem , 561-6, 45, 1999

View

4.8

7.5

Mixed

22.7

Healthy

Plasma

1 per Day

View

Short-term and long-term intra-individual variations and critical differences of clinical chemical laboratory parameters

Costongs GMPJ, Janson PCW and Bas BM, J Clin Chem Clin Biochem, 7-16, 23, 1985

View

13.3

Mixed

Healthy

Serum

1 per Other

View

Within subject biological variation of glucose and HbA1c in healthy persons and in type 1

diabetes patients	View	31.1	16.3	Mixed	Non-healthy	Plasma	1 per Week
Carlsen S, Petersen PH, Skeie S, Skadberg O and Sandberg S, Clin Chem Lab Med, 1501-7, 49, 2011							
View							
Individual Character of Variation in Time-Series Studies of Healthy People II. Differences in Values for Clinical Chemical Analytes in Serum among Demographic Groups by Age and Sex	View	6.1	5.9	Females	Healthy	Serum	1 per Week
Williams GZ, Widdowson GM and Penton J, Clin Chem, 313-20, 24, 1978							
View							
Analytical and biological variability in biomarker measurement in the Hispanic Community Health Study/Study of Latinos	View	20.2	36.07	Mixed	Non-healthy	Serum	2 per Month
Thyagarajan B, Howard AG, Durazo-Arvizu R, Eckfeldt JH, Gellman MD, Kim RS, Liu K, Mendez AJ, Penedo FJ, Talavera GA, Youngblood ME, Zhao L and Sotres-Alvarez D, Clin Chim Acta, 129-137, 463, 2016							
View							
Individual Character of Variation in Time-Series Studies of Healthy People II. Differences in Values for Clinical Chemical Analytes in Serum among Demographic Groups by Age and Sex	View	6.9	8.0	Males	Healthy	Serum	1 per Week
Williams GZ, Widdowson GM and Penton J, Clin Chem, 313-20, 24, 1978							
View							
Individual Character of Variation in Time-Series Studies of Healthy People II. Differences in Values for Clinical Chemical Analytes in							

<div><div>Serum among Demographic Groups by Age and Sex</div><div>Williams GZ, Widdowson GM and Penton J, Clin Chem, 313-20, 24, 1978</div><div>View</div></div>	7.8	10.0	Females	Healthy	Serum	1 per Week
<div><div>Individual Character of Variation in Time-Series Studies of Healthy People II. Differences in Values for Clinical Chemical Analytes in Serum among Demographic Groups by Age and Sex</div><div>Williams GZ, Widdowson GM and Penton J, Clin Chem, 313-20, 24, 1978</div><div>View</div></div>	7.8	6.8	Males	Healthy	Serum	1 per Week
<div><div>Individual Character of Variation in Time-Series Studies of Healthy People II. Differences in Values for Clinical Chemical Analytes in Serum among Demographic Groups by Age and Sex</div><div>Williams GZ, Widdowson GM and Penton J, Clin Chem, 313-20, 24, 1978</div><div>View</div></div>	6.6	8.3	Females	Healthy	Serum	1 per Week
<div><div>Analytical and biological variability in biomarker measurement in the Hispanic Community Health Study/Study of Latinos</div><div>Thyagarajan B, Howard AG, Durazo-Arvizu R, Eckfeldt JH, Gellman MD, Kim RS, Liu K, Mendez AJ, Penedo FJ, Talavera GA, Youngblood ME, Zhao L and Sotres-Alvarez D, Clin Chim Acta, 129-137, 463, 2016</div><div>View</div></div>	5.2	36.26	Mixed	Healthy	Serum	2 per Month
<div><div>Analytical and biological variability in biomarker measurement in the Hispanic Community Health Study/Study of Latinos</div><div></div><div>View</div></div>						

L1 L1M Biological variation									
Health Study/Study of Latinos									
Thyagarajan B, Howard AG, Durazo-Arvizu R, Eckfeldt JH, Gellman MD, Kim RS, Liu K, Mendez AJ, Penedo FJ, Talavera GA, Youngblood ME, Zhao L and Sotres-Alvarez D, Clin Chim Acta, 129-137, 463, 2016	View	16.6	34.91	Females	Healthy	Serum	2 per Month		
View									
Biological variations of thirteen plasma biochemical indicators									
Qi Z, Chen Y, Zhang L, Ma X, Wang F, Cheng Q, Du J, Hao Y, Chi S, Cui W, Clin Chim Acta, 87-91, 452, 2016	View	4.66	5.26	Mixed	Healthy	Plasma	1 per Day		
View									
Estimate of biological variation of laboratory analytes based on the third National Health and Nutrition Examination Survey									
Lacher DA, Hughes JP and Carroll MD, Clin Chem, 450-2, 51, 2005	View	8.3		Mixed	30.8	Healthy	Plasma	"No Sampling Intervals"	
View									
Biological variation of laboratory analytes based on the 1999–2002 National Health and Nutrition Examination Survey									
Lacher DA, Hughes JP and Carroll MD, Natl Health Stat Report , , 21, 2010	View	7.5		Mixed		Healthy	Plasma	1 per Other	
View									
Total short-term variability in biomarkers of hyperglycemia in older adults									
Parrinello CM, Lutsey PL, Couper D, Eckfeldt JH, Steffes MW, Coresh J and Selvin E, Clin Chem, 1540-1, 61, 2015	View	9.6		Mixed	76.0	Non-healthy	Plasma	6 per Week	
View									
Analytical and biological variability in biomarker measurement in the Hispanic Community Health Study/Study of									

Health Study/Study of Latinos							
Thyagarajan B, Howard AG, Durazo-Arvizu R, Eckfeldt JH, Gellman MD, Kim RS, Liu K, Mendez AJ, Penedo FJ, Talavera GA, Youngblood ME, Zhao L and Sotres-Alvarez D, Clin Chim Acta, 129-137, 463, 2016	View	2.6	37.96	Males	Healthy	Serum	2 per Month
View							



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