

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2024-02

Sample sent on : 2024/05/27

Reporting deadline : 2024/06/03

Sample sent : [30 set](#)

Results reported (%) : 30 (100%)

1. [Long term observation of inter laboratory CV vs. surveys](#)

4. [The distribution of G6PD reported in this survey](#)

2. [Long term observation of inter laboratory CV vs. G6PD activities](#)

5. [The distribution of Hb reported in this survey](#)

3. [Deviation graph for individual laboratory](#)

6. [Others](#)

Summary Report of G6PD and Hemoglobin (Hb) Quantitative Test Results

Lab	Referral Hosp.	Report (day)	G6PD Reagent Code	Sample 1				Sample 2				Sample 3				Hb 1 (g/dL)	Hb 2 (g/dL)	Hb 3 (g/dL)
				(U/g Hb)	D%	z score	SDI	(U/g Hb)	D%	z score	SDI	(U/g Hb)	D%	z score	SDI			
F02	F02	2	5	3.5	2.9%	0.4	0.6	5.7	1.8%	0.3	0.4	8.8	2.3%	0.3	0.6	3.0	1.6	2.9
F03	F03	6	5	3.5	2.9%	0.4	0.6	5.9	5.4%	0.8	1.1	9.2	7.0%	1.0	1.9	3.6	1.9	2.9
F04	F04	7	5	3.1	-8.8%	-1.3	-1.7	5.2	-7.1%	-1.0	-1.4	8.1	-5.8%	-0.8	-1.6	3.0	2.2	3.2
F05	F05	6	5	3.4	0.0%	0.0	0.0	5.6	0.0%	0.0	0.0	8.7	1.2%	0.2	0.3	3.0	2.1	3.0
F07	F07	7	5	3.5	2.9%	0.4	0.6	5.7	1.8%	0.3	0.4	8.7	1.2%	0.2	0.3	3.1	2.0	3.1
F09	F09	7	5	2.5	-26.5%	-3.8	-5.0	4.6	-17.9%	-2.6	-3.6	7.6	-11.6%	-1.7	-3.1	3.1	2.3	3.2
F10	F10	5	5	3.2	-5.9%	-0.8	-1.1	5.6	0.0%	0.0	0.0	8.6	0.0%	0.0	0.0	3.3	2.2	3.2
F11	F11	7	5	3.6	5.9%	0.8	1.1	5.9	5.4%	0.8	1.1	8.8	2.3%	0.3	0.6	2.9	2.0	3.1
F12	F12	7	5	3.5	2.9%	0.4	0.6	5.7	1.8%	0.3	0.4	8.8	2.3%	0.3	0.6	3.1	2.1	3.1
F13	F13	4	5	3.1	-8.8%	-1.3	-1.7	5.2	-7.1%	-1.0	-1.4	8.3	-3.5%	-0.5	-0.9	2.7	1.9	2.6
F14	F14	6	5	3.5	2.9%	0.4	0.6	5.7	1.8%	0.3	0.4	8.6	0.0%	0.0	0.0	3.1	2.1	3.1
F15	F15	7	5	3.5	2.9%	0.4	0.6	5.8	3.6%	0.5	0.7	8.8	2.3%	0.3	0.6	3.1	2.1	3.1
F17	F17	7	5	3.4	0.0%	0.0	0.0	5.8	3.6%	0.5	0.7	9.0	4.7%	0.7	1.3	3.0	2.0	2.7
F18	F18	3	5	3.5	2.9%	0.4	0.6	5.8	3.6%	0.5	0.7	8.5	-1.2%	-0.2	-0.3	3.3	2.3	3.4
F19	F19	7	5	3.5	2.9%	0.4	0.6	5.7	1.8%	0.3	0.4	8.5	-1.2%	-0.2	-0.3	3.0	2.0	3.0
F20	F20	5	5	3.5	2.9%	0.4	0.6	5.5	-1.8%	-0.3	-0.4	8.4	-2.3%	-0.3	-0.6	3.1	2.1	3.2
F21	F21	7	5	3.4	0.0%	0.0	0.0	5.6	0.0%	0.0	0.0	8.5	-1.2%	-0.2	-0.3	3.1	2.2	3.2
F22	F22	4	5	3.2	-5.9%	-0.8	-1.1	5.2	-7.1%	-1.0	-1.4	8.4	-2.3%	-0.3	-0.6	3.0	2.0	3.0
F24	F24	7	5	3.1	-8.8%	-1.3	-1.7	5.3	-5.4%	-0.8	-1.1	7.9	-8.1%	-1.2	-2.2	3.0	2.2	3.3
F25	F25	6	5	3.5	2.9%	0.4	0.6	5.7	1.8%	0.3	0.4	9.0	4.7%	0.7	1.3	2.9	2.0	3.0
F26	F26	6	5	3.5	2.9%	0.4	0.6	5.4	-3.6%	-0.5	-0.7	8.3	-3.5%	-0.5	-0.9	3.2	2.2	3.2
F27	F27	4	5	3.4	0.0%	0.0	0.0	5.6	0.0%	0.0	0.0	8.6	0.0%	0.0	0.0	2.9	2.0	2.9
F28	F28	3	5	3.2	-5.9%	-0.8	-1.1	5.4	-3.6%	-0.5	-0.7	9.1	5.8%	0.8	1.6	3.1	2.0	3.1
F29	F29	7	5	3.2	-5.9%	-0.8	-1.1	5.3	-5.4%	-0.8	-1.1	8.4	-2.3%	-0.3	-0.6	3.3	2.2	3.0
F30	F30	3	5	3.4	0.0%	0.0	0.0	5.9	5.4%	0.8	1.1	8.4	-2.3%	-0.3	-0.6	2.9	1.9	2.8
F31	F31	4	5	3.5	2.9%	0.4	0.6	6.0	7.1%	1.0	1.4	8.5	-1.2%	-0.2	-0.3	3.1	2.0	3.2
F32	F32	4	5	3.4	0.0%	0.0	0.0	5.6	0.0%	0.0	0.0	8.6	0.0%	0.0	0.0	2.9	2.1	3.0
F34	F34	7	5	3.5	2.9%	0.4	0.6	5.7	1.8%	0.3	0.4	8.7	1.2%	0.2	0.3	3.1	2.0	3.0
F35	F35	3	5	3.0	-11.8%	-1.7	-2.2	5.0	-10.7%	-1.5	-2.1	8.0	-7.0%	-1.0	-1.9	3.0	2.0	3.0
F36	F36	2	5	3.3	-2.9%	-0.4	-0.6	5.6	0.0%	0.0	0.0	8.6	0.0%	0.0	0.0	3.1	2.2	3.1

Total participating laboratories = 30

Xa (Median)	-	6	-	3.4	5.6	8.6	3.1	2.1	3.1
u_{Xa}	-	-	-	0.036	0.056	0.064	-	-	-
σ_p	-	-	-	0.238	0.392	0.602	-	-	-
σ_p'	-	-	-	-	-	-	-	-	-
Range	-	2-7	-	2.5-3.6	4.6-6.0	7.6-9.2	2.7-3.6	1.6-2.3	2.6-3.4
n	-	-	-	30	30	30	30	30	30
Mean	-	-	-	3.4	5.6	8.6	3.1	2.1	3.1
SD	-	-	-	0.18	0.28	0.32	0.13	0.13	0.15
CV	-	-	-	5.3%	5.0%	3.7%	4.2%	6.2%	4.8%

Note:

- $D\% = [(X - X_a) / X_a] \times 100\%$; X = Your Results, X_a = Assigned value
- u_{Xa} = uncertainty of the assigned value. $u_{Xa} = 1.1 \times SD / n^{1/2}$
- SD for proficiency assessment (σ_p) = 7% x X_a; but while X_a < 2.9 U/g Hb, $\sigma_p = 0.2$ U/g Hb
- Adjusted SD for proficiency assessment (σ_p') = $(\sigma_p^2 + u_{Xa}^2)^{1/2}$. σ_p' is used for proficiency assessment when $u_{Xa} \geq 0.3\sigma_p$
- z score = D / σ_p' ; D = X - X_a, σ_p = SD for proficiency assessment. When adjusted SD (σ_p') is used for proficiency assessment, z score = D / σ_p'
- SDI = $(X - Mean) / SD$; SD = standard deviation of peer group; SDI is not calculated when SD equals 0
- The assigned value (X_a) is the **median** of all the results reported of this EQA sample
- Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528
- The evaluation criteria for measurement result of each specimen : Acceptable : $|z| \leq 2$; Caution : $2 < |z| < 3$; Unsatisfactory : $|z| \geq 3$

Reagent Kit	G6PD Reagent Code	Lab
Medicon	5	F02, F03, F04, F05, F07, F09, F10, F11, F12, F13, F14, F15, F17, F18, F19, F20, F21, F22, F24, F25, F26, F27, F28, F29, F30, F31, F32, F34, F35, F36

Long Term Observation of Blood G6PD Quantitative Test EQA Survey Results

Survey No : RH2024-02 (in green ●)

- Total participants' CV result plotted against surveys

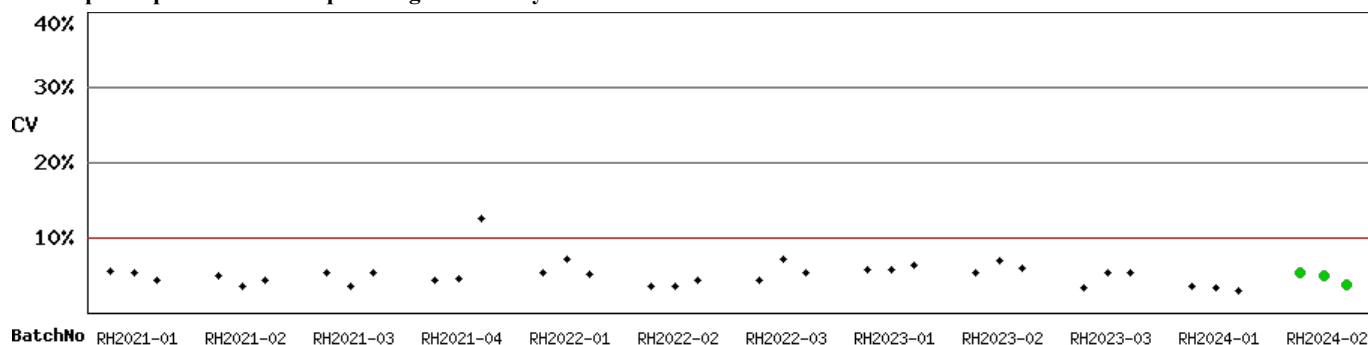


Fig RH-2.1

- Total participants' CV result plotted against G6PD activities

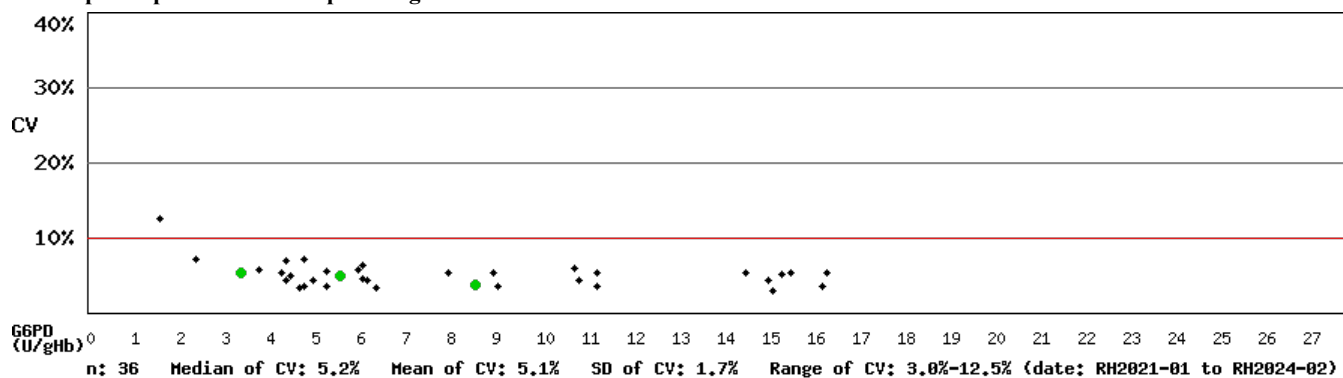


Fig RH-2.2

* Mean and SD are calculated by Robust method according to ISO 13528 since 2014

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(Report generated at 2024-06-03 17:27:58)

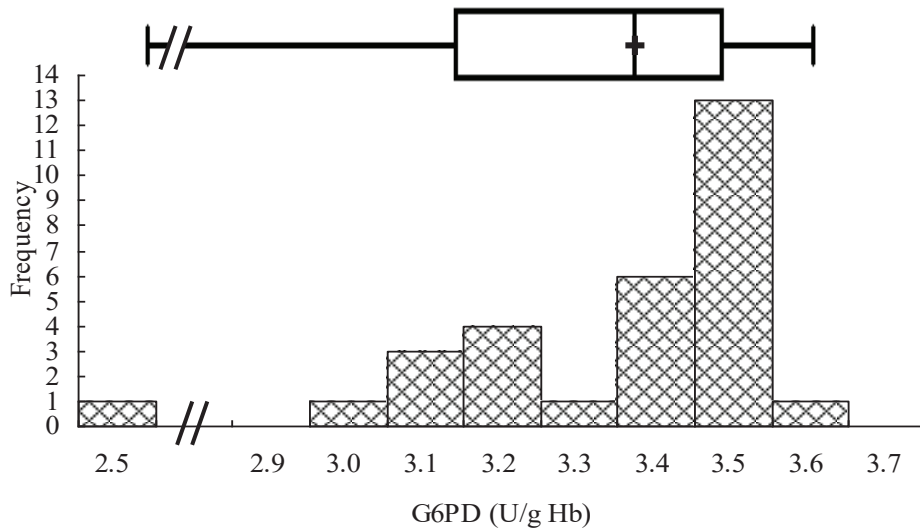
RH2024-02 Distribution of G6PD Test Results

Survey No. : RH2024-02

Sample sent on : 2024/05/27

Reporting deadline : 2024/06/03

Results reported (%) : 100%



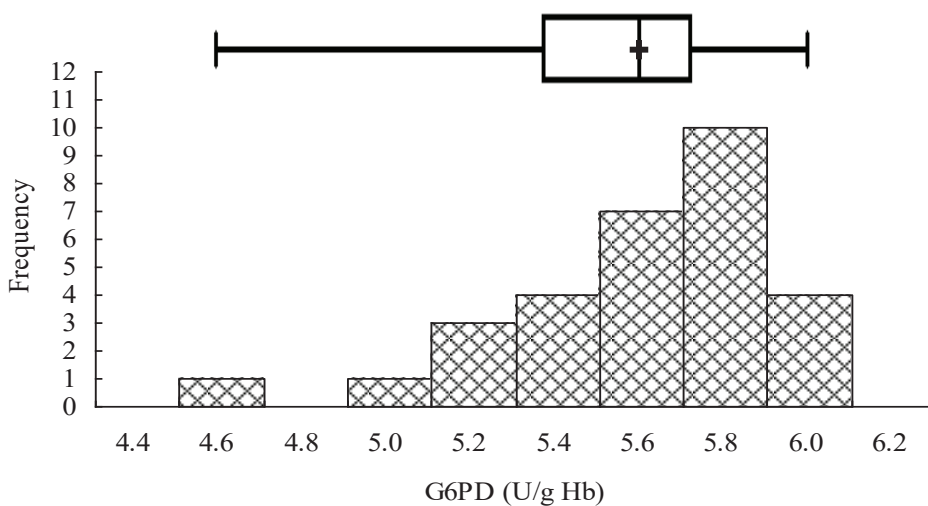
Sample 1

Median = 3.4 (n = 30)

Mean* = 3.4 (n = 30)

SD* = 0.18

CV = 5.3%



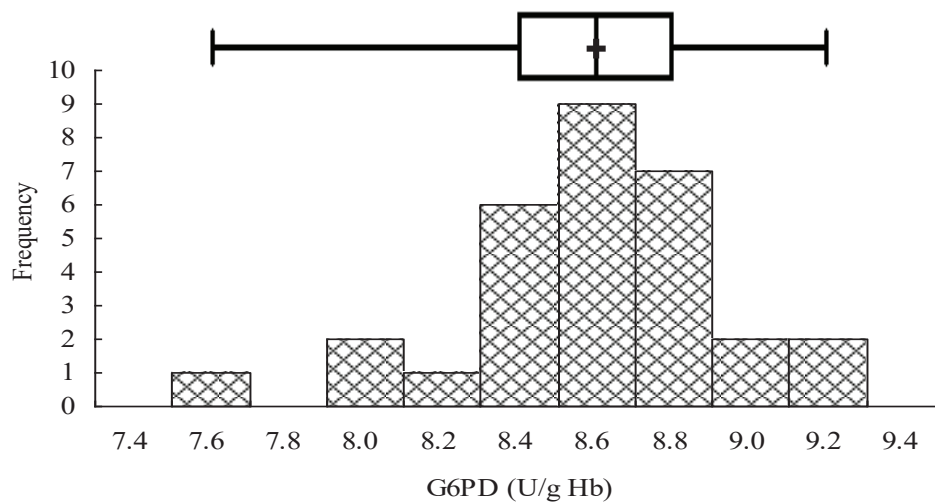
Sample 2

Median = 5.6 (n = 30)

Mean* = 5.6 (n = 30)

SD* = 0.28

CV = 5.0%



Sample 3

Median = 8.6 (n = 30)

Mean* = 8.6 (n = 30)

SD* = 0.32

CV = 3.7%

*Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528

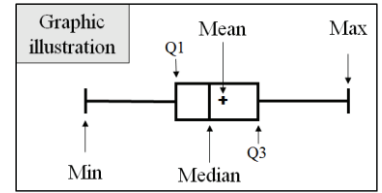
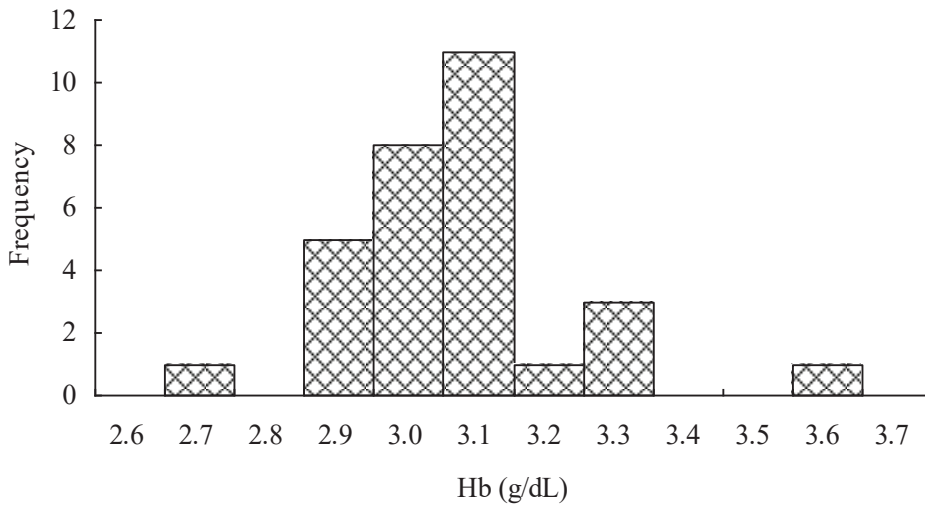
RH2024-02 Distribution of Hb Test Results

Survey No. : RH2024-02

Sample sent on : 2024/05/27

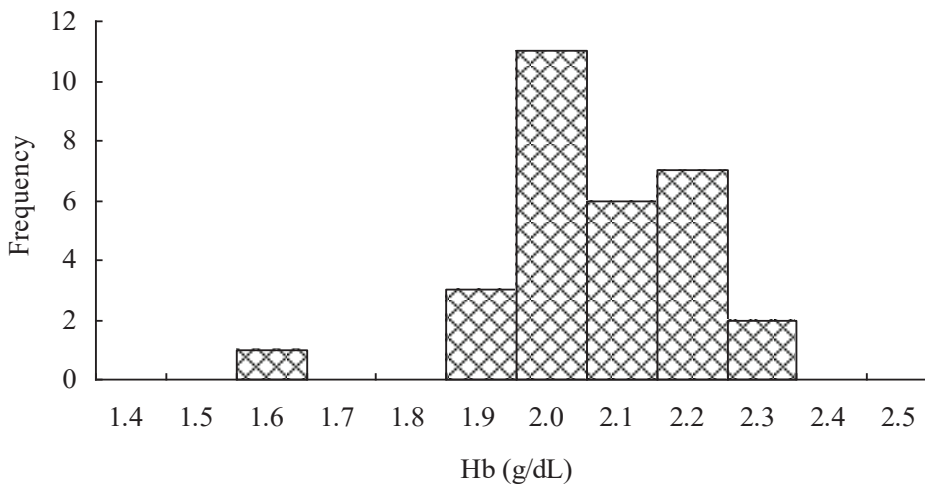
Reporting deadline : 2024/06/03

Results reported (%) : 100%



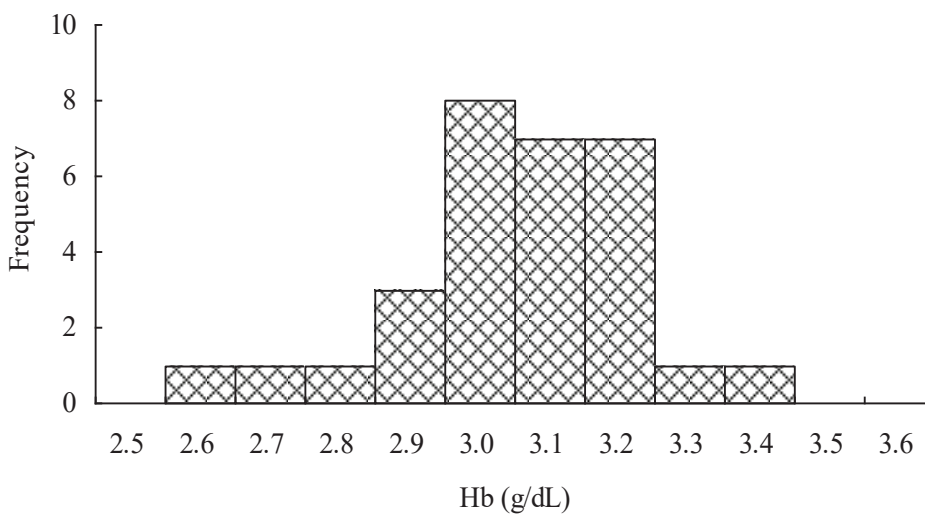
Sample 1

Median = 3.1 (n = 30)
Mean* = 3.1 (n = 30)
SD* = 0.13
CV = 4.2%



Sample 2

Median = 2.1 (n = 30)
Mean* = 2.1 (n = 30)
SD* = 0.13
CV = 6.2%



Sample 3

Median = 3.1 (n = 30)
Mean* = 3.1 (n = 30)
SD* = 0.15
CV = 4.8%

*Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528