

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2024-01  
 Sample sent : 31 set

Sample sent on : 2024/02/26  
 Results reported (%) : 31 (100%)

Reporting deadline : 2024/03/04

- 1. [Long term observation of inter laboratory CV vs. surveys](#)
- 2. [Long term observation of inter laboratory CV vs. G6PD activities](#)
- 3. [Deviation graph for individual laboratory](#)

- 4. [The distribution of G6PD reported in this survey](#)
- 5. [The distribution of Hb reported in this survey](#)
- 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	4.9	2.1%	0.3	0.6	6.4	0.0%	0.0	0.0	15.4	2.0%	0.3	0.4	3.0	1.9	1.9
F03	F03	7	5	4.8	0.0%	0.0	0.0	6.2	-3.1%	-0.4	-1.0	14.6	-3.3%	-0.5	-1.3	3.0	2.0	2.1
F04	F04	5	5	4.7	-2.1%	-0.3	-0.6	6.5	1.6%	0.2	0.5	15.2	0.7%	0.1	0.0	3.0	2.0	2.1
F05	F05	5	5	4.7	-2.1%	-0.3	-0.6	6.3	-1.6%	-0.2	-0.5	15.1	0.0%	0.0	-0.2	3.1	2.0	2.1
F07	F07	7	5	4.9	2.1%	0.3	0.6	6.4	0.0%	0.0	0.0	15.5	2.6%	0.4	0.7	3.2	2.0	2.1
F09	F09	7	5	4.8	0.0%	0.0	0.0	6.0	-6.3%	-0.9	-1.9	15.0	-0.7%	-0.1	-0.4	3.2	2.1	2.2
F10	F10	7	5	4.8	0.0%	0.0	0.0	6.5	1.6%	0.2	0.5	15.0	-0.7%	-0.1	-0.4	3.3	2.1	2.2
F11	F11	7	5	5.3	10.4%	1.5	2.9	7.1	10.9%	1.6	3.3	17.1	13.2%	1.9	4.2	2.9	1.8	1.8
F12	F12	7	5	5.1	6.3%	0.9	1.8	6.9	7.8%	1.1	2.4	16.3	7.9%	1.1	2.4	3.2	2.1	2.1
F13	F13	4	5	4.6	-4.2%	-0.6	-1.2	5.8	-9.4%	-1.3	-2.9	14.0	-7.3%	-1.0	-2.7	2.9	2.0	2.0
F14	F14	7	5	4.9	2.1%	0.3	0.6	6.6	3.1%	0.4	1.0	15.4	2.0%	0.3	0.4	3.0	2.0	1.9
F15	F15	7	5	5.1	6.3%	0.9	1.8	6.4	0.0%	0.0	0.0	15.0	-0.7%	-0.1	-0.4	3.1	2.1	2.2
F17	F17	5	5	4.7	-2.1%	-0.3	-0.6	6.3	-1.6%	-0.2	-0.5	14.6	-3.3%	-0.5	-1.3	3.1	2.0	2.1
F18	F18	3	5	4.9	2.1%	0.3	0.6	6.5	1.6%	0.2	0.5	15.2	0.7%	0.1	0.0	3.3	1.9	2.0
F19	F19	7	5	5.0	4.2%	0.6	1.2	6.6	3.1%	0.4	1.0	15.4	2.0%	0.3	0.4	3.0	2.0	2.0
F20	F20	6	5	4.9	2.1%	0.3	0.6	6.3	-1.6%	-0.2	-0.5	15.0	-0.7%	-0.1	-0.4	3.1	2.1	2.2
F21	F21	7	5	4.7	-2.1%	-0.3	-0.6	6.3	-1.6%	-0.2	-0.5	15.0	-0.7%	-0.1	-0.4	3.3	2.0	2.0
F22	F22	4	5	4.6	-4.2%	-0.6	-1.2	6.2	-3.1%	-0.4	-1.0	15.2	0.7%	0.1	0.0	3.0	1.9	2.0
F24	F24	4	5	5.0	4.2%	0.6	1.2	6.5	1.6%	0.2	0.5	14.8	-2.0%	-0.3	-0.9	3.1	2.0	2.2
F25	F25	7	5	5.0	4.2%	0.6	1.2	6.7	4.7%	0.7	1.4	15.9	5.3%	0.8	1.6	3.0	1.9	2.0
F26	F26	6	5	4.8	0.0%	0.0	0.0	6.2	-3.1%	-0.4	-1.0	14.6	-3.3%	-0.5	-1.3	3.4	2.2	2.2
F27	F27	4	5	4.9	2.1%	0.3	0.6	6.5	1.6%	0.2	0.5	15.5	2.6%	0.4	0.7	3.0	1.9	2.0
F28	F28	7	5	4.8	0.0%	0.0	0.0	6.5	1.6%	0.2	0.5	15.7	4.0%	0.6	1.1	3.0	1.9	2.0
F29	F29	7	5	4.9	2.1%	0.3	0.6	6.3	-1.6%	-0.2	-0.5	15.2	0.7%	0.1	0.0	3.1	2.1	2.1
F30	F30	7	5	4.9	2.1%	0.3	0.6	6.5	1.6%	0.2	0.5	15.3	1.3%	0.2	0.2	3.1	1.8	2.0
F31	F31	4	5	4.8	0.0%	0.0	0.0	6.4	0.0%	0.0	0.0	14.9	-1.3%	-0.2	-0.7	3.3	2.0	2.2
F32	F32	4	5	4.8	0.0%	0.0	0.0	6.1	-4.7%	-0.7	-1.4	15.1	0.0%	0.0	-0.2	3.1	2.0	2.1
F33	F33	3	5	6.1	27.1%	3.9	7.6	8.0	25.0%	3.6	7.6	19.0	25.8%	3.7	8.4	3.0	2.0	2.0
F34	F34	6	5	4.7	-2.1%	-0.3	-0.6	6.3	-1.6%	-0.2	-0.5	14.5	-4.0%	-0.6	-1.6	3.0	1.9	1.9
F35	F35	4	5	4.6	-4.2%	-0.6	-1.2	6.3	-1.6%	-0.2	-0.5	15.1	0.0%	0.0	-0.2	3.1	2.0	2.1
F36	F36	2	5	4.8	0.0%	0.0	0.0	6.2	-3.1%	-0.4	-1.0	15.1	0.0%	0.0	-0.2	3.1	2.0	2.1
Total participating laboratories = 31																		
Xa (Median)	-	6	-	4.8				6.4				15.1				3.1	2.0	2.1
u <sub>Xa</sub>	-	-	-	0.034				0.041				0.089				-	-	-
σ <sub>p</sub>	-	-	-	0.336				0.448				1.057				-	-	-
σ <sub>p'</sub>	-	-	-	-				-				-				-	-	-
Range	-	2-7	-	4.6-6.1				5.8-8.0				14.0-19.0				2.9-3.4	1.8-2.2	1.8-2.2
n	-	-	-	31				31				31				31	31	31
Mean	-	-	-	4.8				6.4				15.2				3.1	2.0	2.1
SD	-	-	-	0.17				0.21				0.45				0.13	0.09	0.11
CV	-	-	-	3.5%				3.3%				3.0%				4.2%	4.5%	5.2%

Note:  
 1.  $D\% = [(X - X_a) / X_a] \times 100\%$ ; X = Your Results, X<sub>a</sub> = Assigned value  
 2.  $u_{X_a} = \text{uncertainty of the assigned value. } u_{X_a} = 1.1 \times \text{SD} / n^{1/2}$   
 3. SD for proficiency assessment ( $\sigma_p$ ) = 7% x X<sub>a</sub>; but while X<sub>a</sub> < 2.9 U/g Hb,  $\sigma_p = 0.2 \text{ U/g Hb}$   
 4. Adjusted SD for proficiency assessment ( $\sigma_{p'}$ ) =  $(\sigma_p^2 + u_{X_a}^2)^{1/2}$ .  $\sigma_{p'}$  is used for proficiency assessment when  $u_{X_a} \geq 0.3\sigma_p$   
 5.  $z \text{ score} = D / \sigma_p$ ;  $D = X - X_a$ ,  $\sigma_p$  = SD for proficiency assessment. When adjusted SD ( $\sigma_{p'}$ ) is used for proficiency assessment,  $z \text{ score} = D / \sigma_{p'}$   
 6. SDI =  $(X - \text{Mean}) / \text{SD}$ ; SD = standard deviation of peer group; SDI is not calculated when SD equals 0  
 7. The assigned value (X<sub>a</sub>) is the **median** of all the results reported of this EQA sample  
 8. Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528  
 9. 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, F33, F34, F35, F36

# Long Term Observation of Blood G6PD Quantitative Test EQA Survey Results

Survey No : RH2024-01 (in green ●)

- Total participants' CV result plotted against surveys

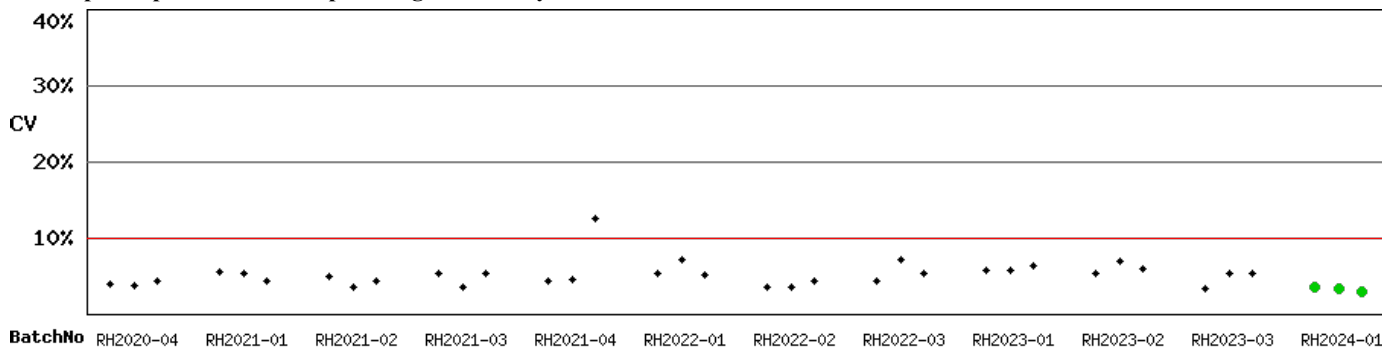


Fig RH-2.1

- Total participants' CV result plotted against G6PD activities

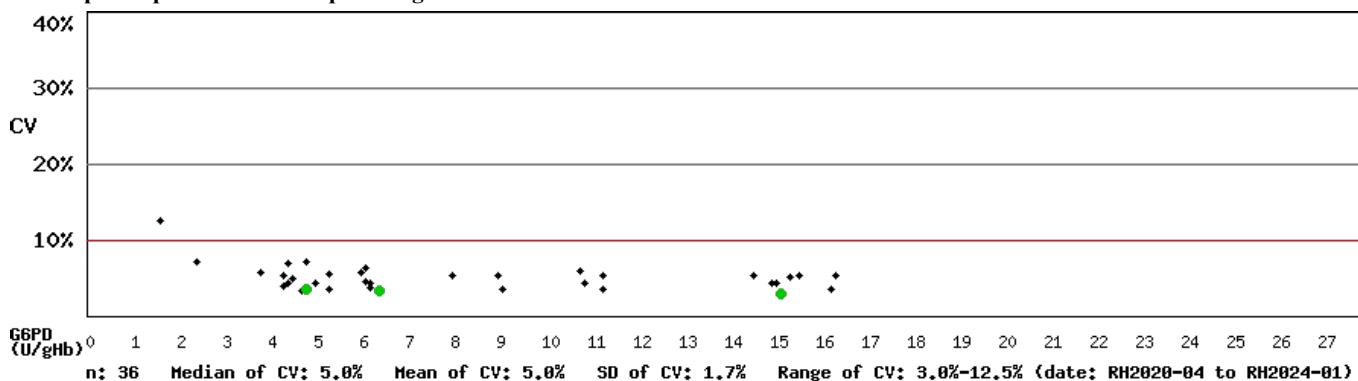


Fig RH-2.2

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

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(Report generated at 2024-03-05 15:15:52)

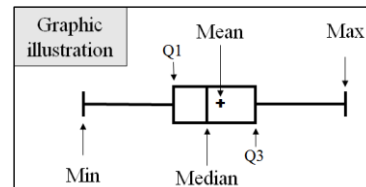
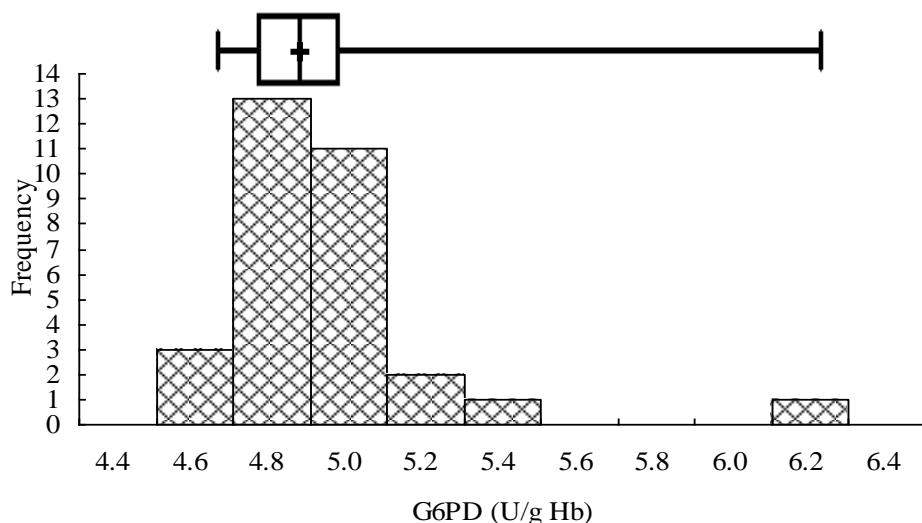
# RH2024-01 Distribution of G6PD Test Results

Survey No. : RH2024-01

Sample sent on : 2024/02/26

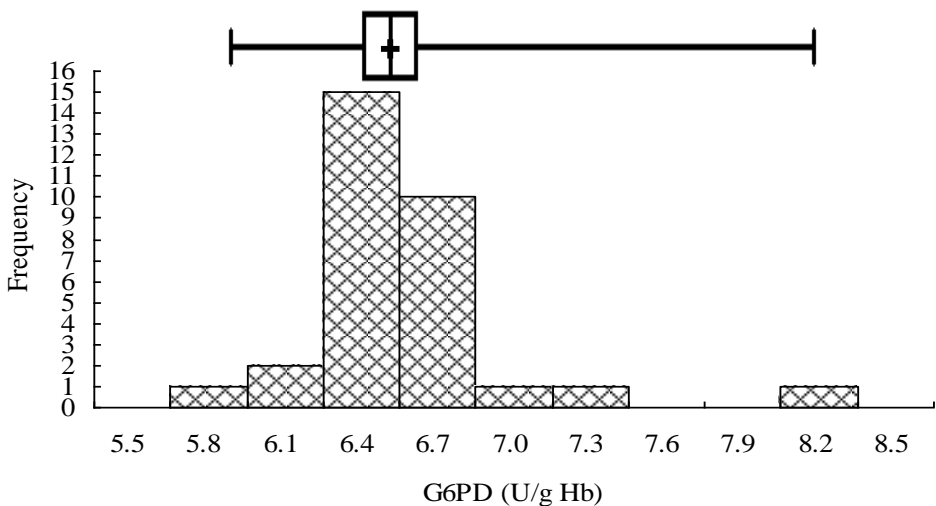
Reporting deadline : 2024/03/04

Results reported (%) : 100%



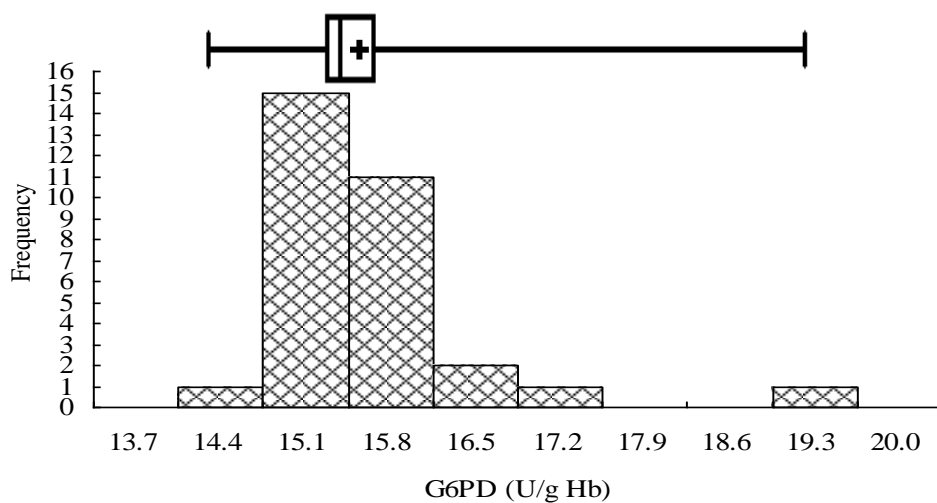
## Sample 1

**Median = 4.8 (n = 31)**  
**Mean\* = 4.8 (n = 31)**  
**SD\* = 0.17**  
**CV = 3.5%**



## Sample 2

**Median = 6.4 (n = 31)**  
**Mean\* = 6.4 (n = 31)**  
**SD\* = 0.21**  
**CV = 3.3%**



## Sample 3

**Median = 15.1 (n = 31)**  
**Mean\* = 15.2 (n = 31)**  
**SD\* = 0.45**  
**CV = 3.0%**

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

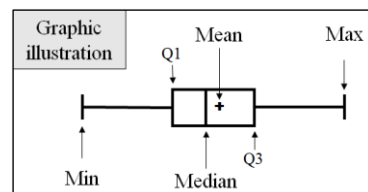
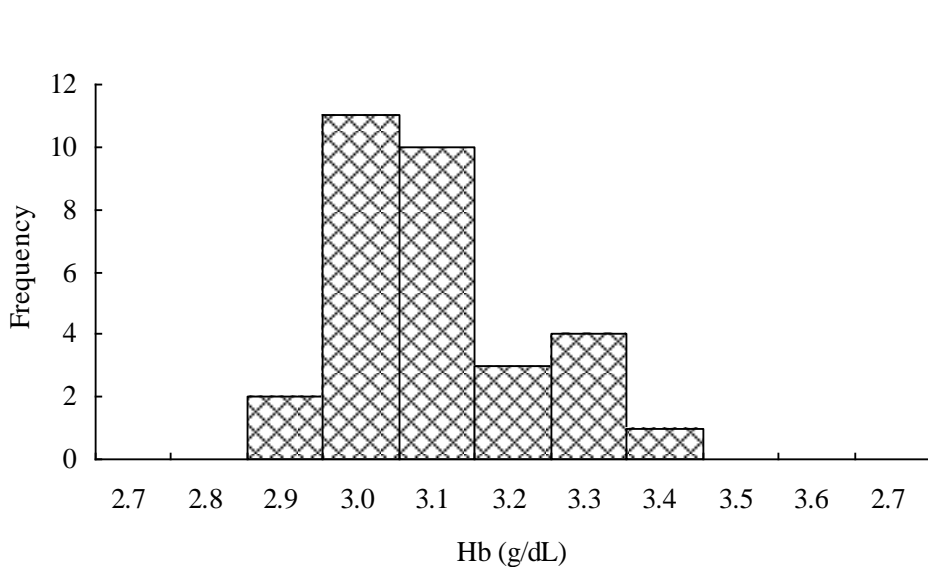
# RH2024-01 Distribution of Hb Test Results

Survey No. : RH2024-01

Sample sent on : 2024/02/26

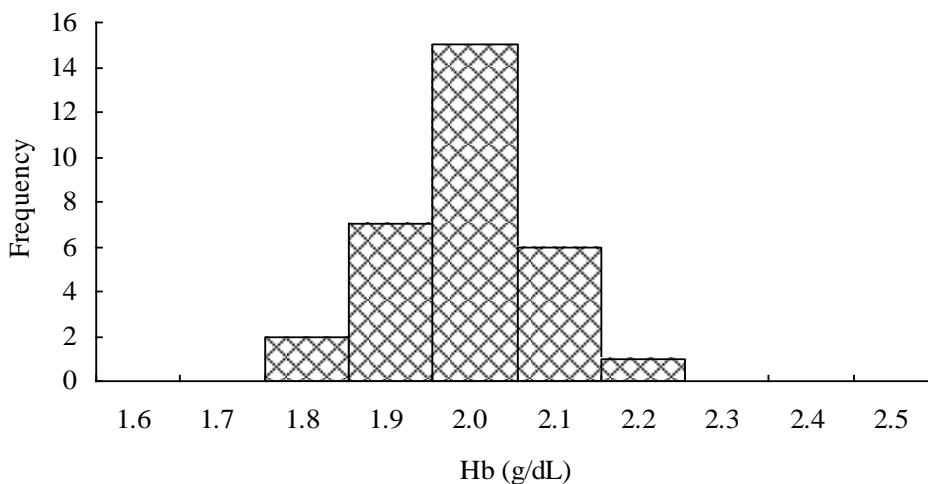
Reporting deadline : 2024/03/04

Results reported (%) : 100%



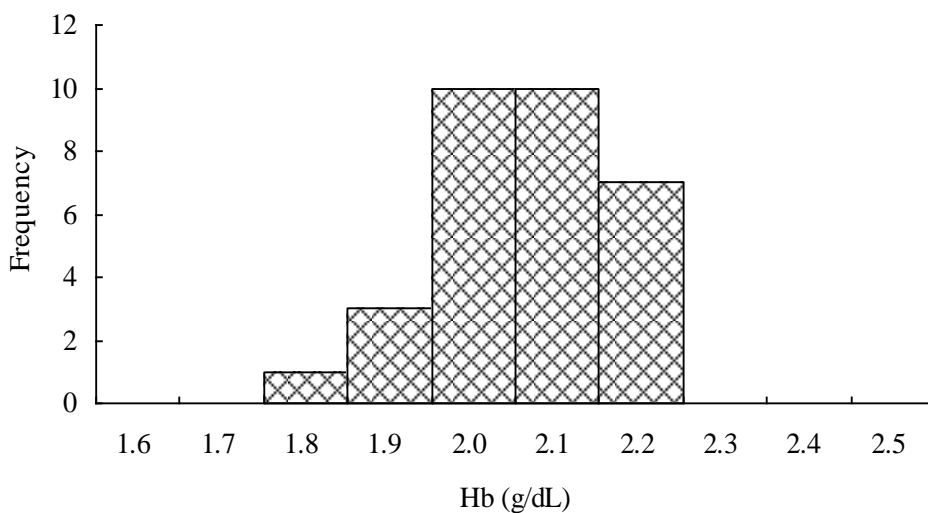
### Sample 1

**Median = 3.1 (n = 31)**  
**Mean\* = 3.1 (n = 31)**  
**SD\* = 0.13**  
**CV = 4.2%**



### Sample 2

**Median = 2.0 (n = 31)**  
**Mean\* = 2.0 (n = 31)**  
**SD\* = 0.09**  
**CV = 4.5%**



### Sample 3

**Median = 2.1 (n = 31)**  
**Mean\* = 2.1 (n = 31)**  
**SD\* = 0.11**  
**CV = 5.2%**

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