

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2021-04  
 Sample sent : 27 set

Sample sent on : 2021/11/08  
 Results reported (%) : 26 (96%)

Reporting deadline : 2021/11/15

- 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](#)
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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	Hb 2	Hb 3
				(U/gHb)	D%	z score	SDI	(U/gHb)	D%	z score	SDI	(U/gHb)	D%	z score	SDI	(g/dL)	(g/dL)	(g/dL)
F02	F02	4	5	11.2	1.8%	0.3	0.6	6.3	3.3%	0.5	0.7	1.6	0.0%	0.0	0.0	2.3	2.0	1.9
F03	F03	6	5	11.5	4.5%	0.6	1.3	6.3	3.3%	0.5	0.7	1.6	0.0%	0.0	0.0	2.4	2.1	2.0
F04	F04	6	5	11.2	1.8%	0.3	0.6	6.3	3.3%	0.5	0.7	1.6	0.0%	0.0	0.0	2.4	2.1	2.0
F05	F05	3	5	10.3	-6.4%	-0.9	-1.3	5.8	-4.9%	-0.7	-1.1	1.4	-12.5%	-1.0	-1.0	2.5	2.1	2.0
F07	F07	7	5	10.6	-3.6%	-0.5	-0.6	6.3	3.3%	0.5	0.7	1.5	-6.3%	-0.5	-0.5	2.4	2.1	1.9
F09	F09	14	5	10.7	-2.7%	-0.4	-0.4	6.0	-1.6%	-0.2	-0.4	1.7	6.2%	0.5	0.5	2.2	1.8	1.7
F10	F10	7	5	11.0	0.0%	0.0	0.2	5.6	-8.2%	-1.2	-1.8	1.5	-6.3%	-0.5	-0.5	2.3	1.9	1.8
F11	F11	7	5	11.0	0.0%	0.0	0.2	6.0	-1.6%	-0.2	-0.4	1.6	0.0%	0.0	0.0	2.3	2.0	1.9
F12	F12	7	5	11.8	7.3%	1.0	1.9	6.5	6.6%	0.9	1.4	1.6	0.0%	0.0	0.0	2.4	2.1	1.9
F13	F13	6	5	10.6	-3.6%	-0.5	-0.6	5.9	-3.3%	-0.5	-0.7	1.4	-12.5%	-1.0	-1.0	2.2	1.9	1.7
F14	F14	7	5	10.7	-2.7%	-0.4	-0.4	6.2	1.6%	0.2	0.4	1.7	6.2%	0.5	0.5	2.5	2.3	2.1
F15	F15	3	5	11.9	8.2%	1.2	2.1	6.4	4.9%	0.7	1.1	2.0	25.0%	2.0	2.0	2.3	2.0	2.0
F18	F18	3	5	10.9	-0.9%	-0.1	0.0	6.2	1.6%	0.2	0.4	1.6	0.0%	0.0	0.0	2.5	2.2	1.9
F19	F19	14	5	10.6	-3.6%	-0.5	-0.6	5.9	-3.3%	-0.5	-0.7	1.8	12.5%	1.0	1.0	2.3	2.0	1.9
F20	F20	7	5	11.2	1.8%	0.3	0.6	6.2	1.6%	0.2	0.4	1.6	0.0%	0.0	0.0	2.3	2.1	1.9
F21	F21	7	5	11.1	0.9%	0.1	0.4	5.9	-3.3%	-0.5	-0.7	1.4	-12.5%	-1.0	-1.0	2.5	1.9	2.0
F22	F22	2	5	10.0	-9.1%	-1.3	-1.9	5.6	-8.2%	-1.2	-1.8	1.8	12.5%	1.0	1.0	2.5	2.2	1.9
F24	F24	7	5	10.6	-3.6%	-0.5	-0.6	6.2	1.6%	0.2	0.4	1.9	18.8%	1.5	1.5	2.5	2.1	2.0
F25	F25	14	5	9.9	-10.0%	-1.4	-2.1	5.8	-4.9%	-0.7	-1.1	2.2	37.5%	3.0	3.0	2.7	2.3	2.0
F27	F27	7	5	10.7	-2.7%	-0.4	-0.4	5.9	-3.3%	-0.5	-0.7	1.8	12.5%	1.0	1.0	2.4	2.0	1.7
F28	F28	2	5	11.1	0.9%	0.1	0.4	5.8	-4.9%	-0.7	-1.1	1.4	-12.5%	-1.0	-1.0	2.5	2.1	2.0
F29	F29	10	5	11.7	6.4%	0.9	1.7	6.5	6.6%	0.9	1.4	1.9	18.8%	1.5	1.5	2.4	1.9	1.9
F30	None	N.R.	5	N.R.	N.R.%	N.R.	N.R.	N.R.	N.R.%	N.R.	N.R.	N.R.	N.R.%	N.R.	N.R.	N.R.	N.R.	N.R.
F31	F31	7	5	11.2	1.8%	0.3	0.6	6.3	3.3%	0.5	0.7	1.6	0.0%	0.0	0.0	2.2	1.9	1.9
F32	F32	4	5	11.1	0.9%	0.1	0.4	6.0	-1.6%	-0.2	-0.4	1.6	0.0%	0.0	0.0	2.3	2.0	1.9
F33	F33	7	5	11.1	0.9%	0.1	0.4	6.1	0.0%	0.0	0.0	1.6	0.0%	0.0	0.0	2.2	1.9	1.8
F34	F34	4	5	10.5	-4.5%	-0.6	-0.8	5.9	-3.3%	-0.5	-0.7	1.3	-18.8%	-1.5	-1.5	2.3	2.0	1.9
Total participating laboratories = 27																		
Xa (Median)	-	7	-	11.0				6.1				1.6				2.4	2.0	1.9
u <sub>Xa</sub>	-	-	-	0.104				0.060				0.043				-	-	-
σ <sub>p</sub>	-	-	-	0.770				0.427				0.200				-	-	-
σ <sub>p'</sub>	-	-	-	-				-				-				-	-	-
Range	-	2-14	-	9.9-11.9				5.6-6.5				1.3-2.2				2.2-2.7	1.8-2.3	1.7-2.1
n	-	-	-	26				26				26				26	26	26
Mean	-	-	-	10.9				6.1				1.6				2.4	2.0	1.9
S.D.	-	-	-	0.48				0.28				0.20				0.13	0.13	0.09
C.V.	-	-	-	4.4%				4.6%				12.5%				5.4%	6.5%	4.7%

Note:

1.  $D\% = [(X - X_a) / X_a] \times 100\%$ ; X = Your Results, X<sub>a</sub> = Assigned value
2.  $u_{X_a}$  = uncertainty of the assigned value.  $u_{X_a} = 1.1 \times SD / n^{1/2}$
3. SD for proficiency assessment ( $\sigma_p$ ) = 7% x X<sub>a</sub>; but while X<sub>a</sub> < 2.9 U/gHb,  $\sigma_p = 0.2$  U/gHb
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 score = D /  $\sigma_p$ ; D = X - X<sub>a</sub>,  $\sigma_p$  = SD for proficiency assessment
6. SDI = (X - Mean) / 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| ≤ 2; Caution : 2 < |z| ≤ 3; Unsatisfactory : |z| > 3

Reagent Kit	G6PD Reagent Code	Lab
Medicon	5	F02, F03, F04, F05, F07, F09, F10, F11, F12, F13, F14, F15, F18, F19, F20, F21, F22, F24, F25, F27, F28, F29, F31, F32, F33, F34

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

Survey No : RH2021-04 (in green ●)

- Total participants' CV result plotted against surveys

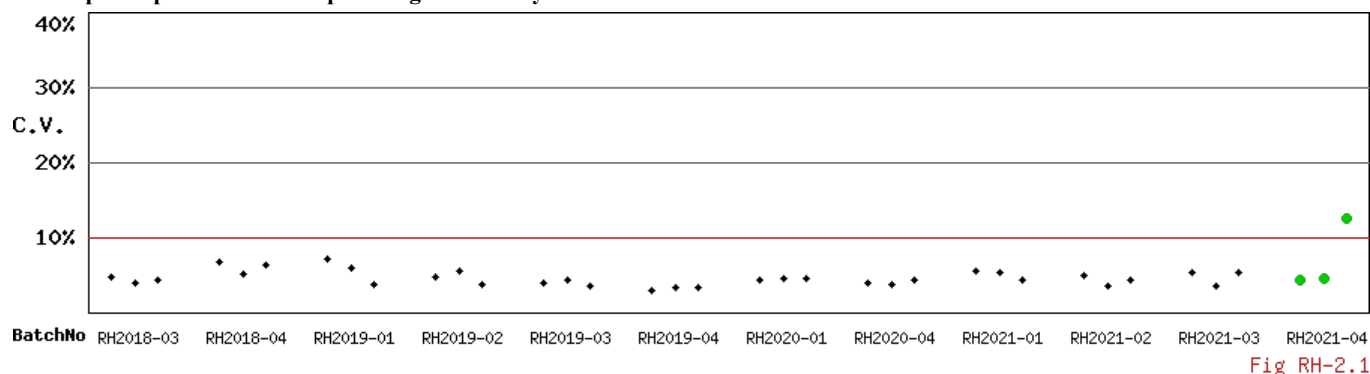


Fig RH-2.1

- Total participants' CV result plotted against G6PD activities

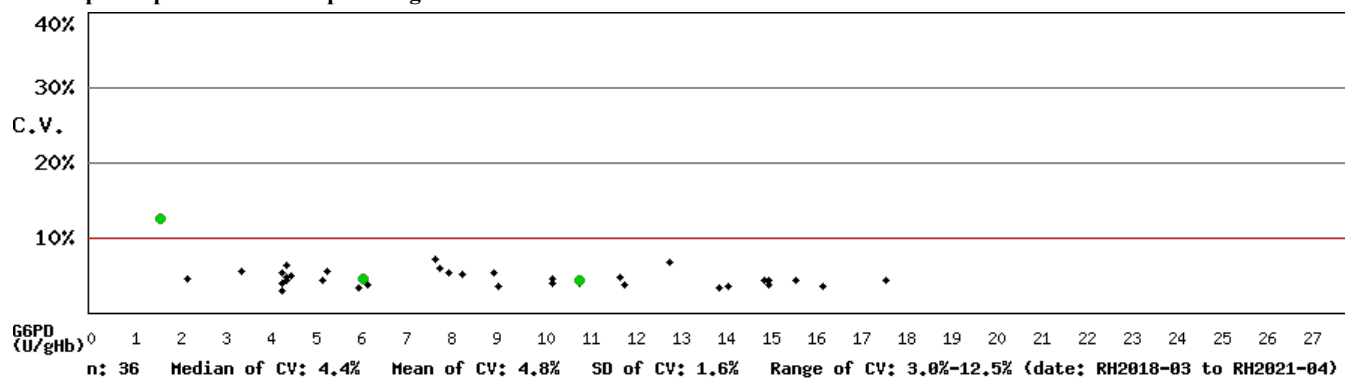


Fig RH-2.2

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

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(Report generated at 2021-11-22 23:52:49)

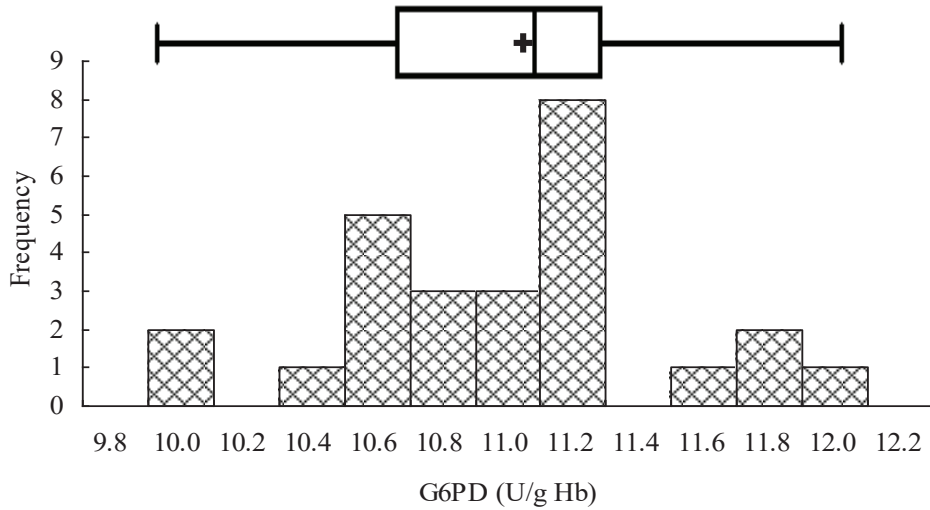
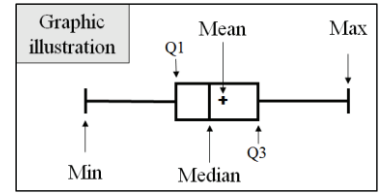
## RH2021-04 Distribution of G6PD Test Results

Survey No. : RH2021-04

Sample sent on : 2021/11/08

Reporting deadline : 2021/11/15

Results reported (%) : 96.6%



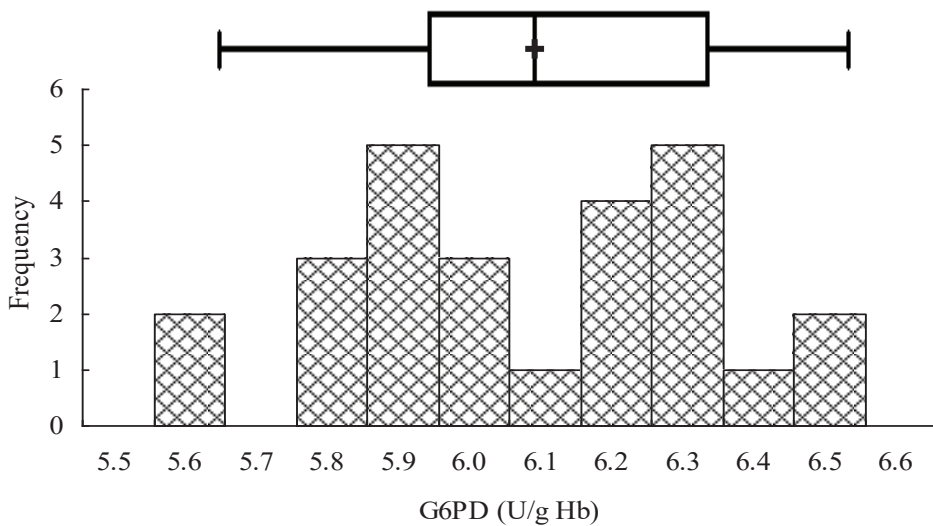
### Sample 1

**Median = 11.0 (n = 26)**

**Mean\* = 10.9 (n = 26)**

**SD\* = 0.48**

**CV = 4.4%**



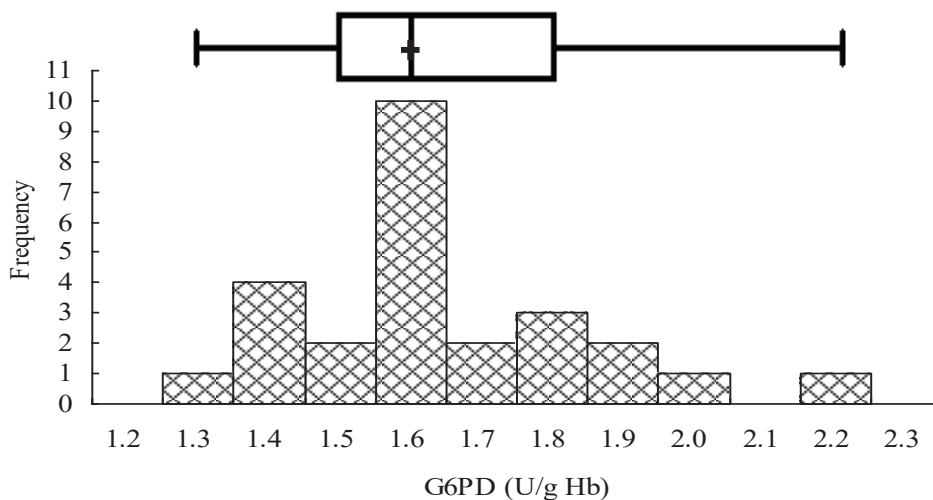
### Sample 2

**Median = 6.1 (n = 26)**

**Mean\* = 6.1 (n = 26)**

**SD\* = 0.28**

**CV = 4.6%**



### Sample 3

**Median = 1.6 (n = 26)**

**Mean\* = 1.6 (n = 26)**

**SD\* = 0.20**

**CV = 12.5%**

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

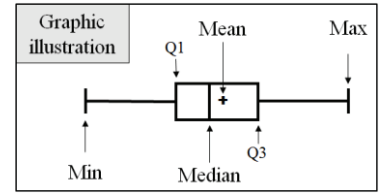
## RH2021-04 Distribution of Hb Test Results

Survey No. : RH2021-04

Sample sent on : 2021/11/08

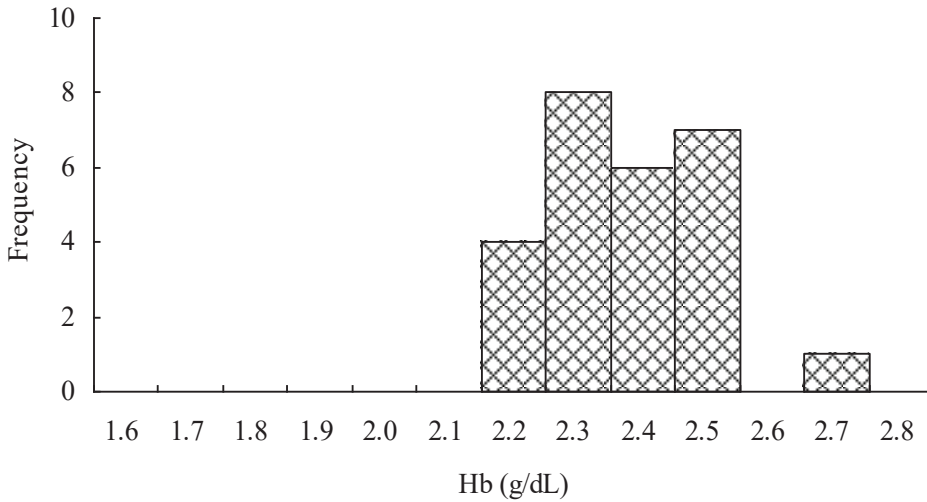
Reporting deadline : 2021/11/15

Results reported (%) : 96.6%



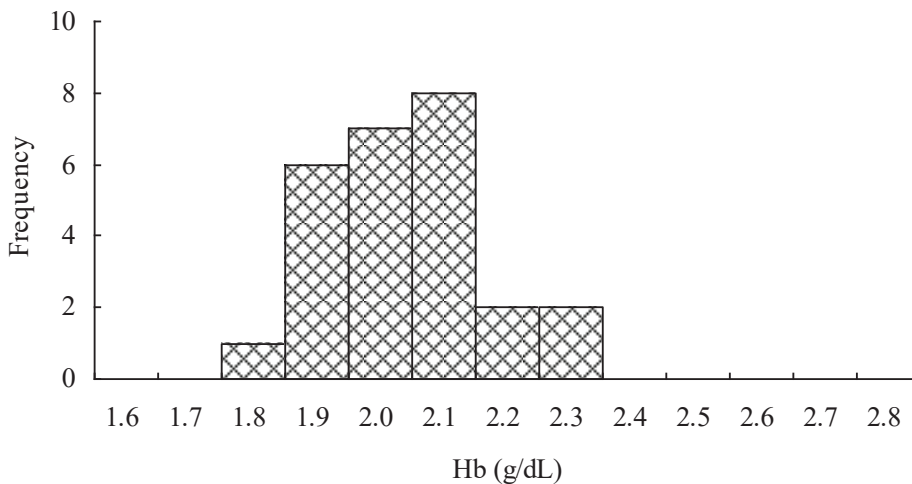
### Sample 1

**Median = 2.4 (n = 26)**  
**Mean\* = 2.4 (n = 26)**  
**SD\* = 0.13**  
**CV = 5.4%**



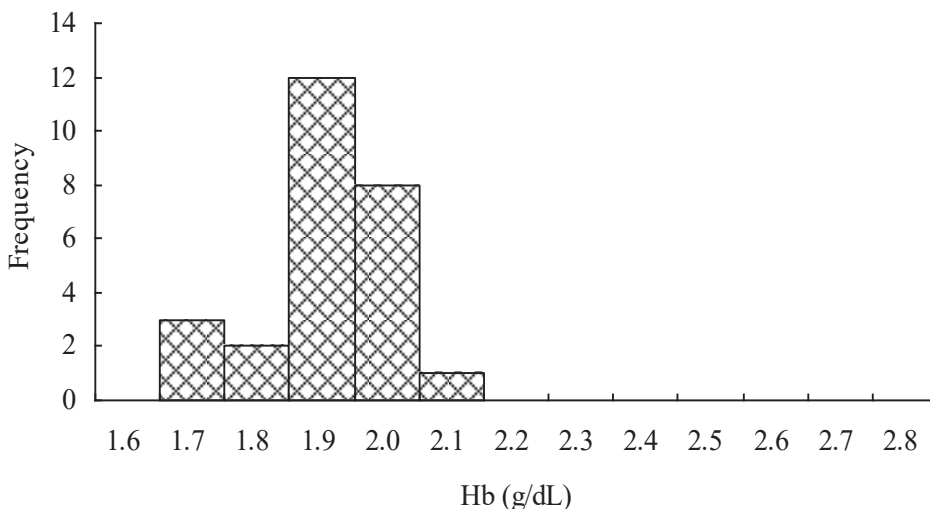
### Sample 2

**Median = 2.0 (n = 26)**  
**Mean\* = 2.0 (n = 26)**  
**SD\* = 0.13**  
**CV = 6.5%**



### Sample 3

**Median = 1.9 (n = 26)**  
**Mean\* = 1.9 (n = 26)**  
**SD\* = 0.09**  
**CV = 4.7%**



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