

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2022-01  
 Sample sent : 29 set

Sample sent on : 2022/02/21  
 Results reported (%) : 28 (97%)

Reporting deadline : 2022/02/28

- 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/gHb)	D%	z score	SDI	(U/gHb)	D%	z score	SDI	(U/gHb)	D%	z score	SDI			
F02	F02	3	5	15.7	0.0%	0.0	0.1	4.8	0.0%	0.0	0.0	15.3	-1.3%	-0.2	-0.1	2.1	2.0	2.2
F03	F03	7	5	15.8	0.6%	0.1	0.2	4.6	-4.2%	-0.6	-0.6	15.6	0.6%	0.1	0.3	2.1	2.1	2.2
F04	F04	6	5	15.6	-0.6%	-0.1	0.0	4.8	0.0%	0.0	0.0	15.4	-0.6%	-0.1	0.0	2.2	2.3	2.6
F05	F05	5	5	14.9	-5.1%	-0.7	-0.8	4.6	-4.2%	-0.6	-0.6	14.7	-5.2%	-0.7	-0.9	2.1	2.1	2.2
F07	F07	7	5	15.6	-0.6%	-0.1	0.0	4.8	0.0%	0.0	0.0	15.9	2.6%	0.4	0.6	2.3	2.3	2.3
F09	F09	7	5	15.7	0.0%	0.0	0.1	5.0	4.2%	0.6	0.6	15.8	1.9%	0.3	0.5	2.1	2.2	2.3
F10	F10	7	5	14.9	-5.1%	-0.7	-0.8	4.4	-8.3%	-1.2	-1.2	14.3	-7.7%	-1.1	-1.4	2.1	2.1	2.2
F11	F11	7	5	15.8	0.6%	0.1	0.2	4.9	2.1%	0.3	0.3	15.6	0.6%	0.1	0.3	2.1	2.3	2.4
F12	F12	7	5	16.5	5.1%	0.7	1.1	5.3	10.4%	1.5	1.5	16.6	7.1%	1.0	1.5	2.0	2.0	2.2
F13	F13	6	5	15.2	-3.2%	-0.5	-0.5	4.7	-2.1%	-0.3	-0.3	15.1	-2.6%	-0.4	-0.4	2.0	1.9	2.0
F14	F14	7	5	15.3	-2.5%	-0.4	-0.4	4.8	0.0%	0.0	0.0	14.8	-4.5%	-0.6	-0.8	2.2	2.1	2.4
F15	F15	3	5	16.2	3.2%	0.5	0.7	5.0	4.2%	0.6	0.6	16.0	3.2%	0.5	0.8	2.1	2.1	2.2
F17	F17	7	5	14.6	-7.0%	-1.0	-1.2	4.5	-6.3%	-0.9	-0.9	14.7	-5.2%	-0.7	-0.9	2.2	2.1	2.2
F18	F18	7	5	15.2	-3.2%	-0.5	-0.5	4.3	-10.4%	-1.5	-1.5	14.7	-5.2%	-0.7	-0.9	2.2	2.0	2.3
F19	F19	12	5	13.7	-12.7%	-1.8	-2.3	4.4	-8.3%	-1.2	-1.2	14.3	-7.7%	-1.1	-1.4	2.1	2.0	2.1
F20	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.
F21	F21	7	5	15.5	-1.3%	-0.2	-0.1	4.8	0.0%	0.0	0.0	15.5	0.0%	0.0	0.1	2.2	2.1	2.3
F22	F22	2	5	15.8	0.6%	0.1	0.2	4.9	2.1%	0.3	0.3	15.6	0.6%	0.1	0.3	1.9	1.9	2.1
F24	F24	5	5	16.4	4.5%	0.6	1.0	5.2	8.3%	1.2	1.2	15.9	2.6%	0.4	0.6	2.0	2.1	2.2
F25	F25	3	5	15.9	1.3%	0.2	0.4	4.8	0.0%	0.0	0.0	15.4	-0.6%	-0.1	0.0	2.2	2.2	2.4
F26	F26	8	5	13.5	-14.0%	-2.0	-2.5	3.9	-18.8%	-2.7	-2.6	12.2	-21.3%	-3.0	-4.1	2.4	2.3	2.7
F27	F27	4	5	16.0	1.9%	0.3	0.5	5.0	4.2%	0.6	0.6	15.5	0.0%	0.0	0.1	2.1	2.2	2.3
F28	F28	2	5	16.4	4.5%	0.6	1.0	4.9	2.1%	0.3	0.3	16.6	7.1%	1.0	1.5	2.2	2.1	2.2
F29	F29	3	5	16.1	2.5%	0.4	0.6	5.1	6.3%	0.9	0.9	16.0	3.2%	0.5	0.8	2.1	2.0	2.1
F30	F30	7	5	9.9	-36.9%	-5.3	-6.9	25.3	427.1%	61.0	60.3	15.2	-1.9%	-0.3	-0.3	2.1	2.1	2.1
F31	F31	3	5	16.7	6.4%	0.9	1.3	5.2	8.3%	1.2	1.2	16.1	3.9%	0.6	0.9	2.0	1.9	2.1
F32	F32	4	5	15.8	0.6%	0.1	0.2	4.9	2.1%	0.3	0.3	15.8	1.9%	0.3	0.5	2.1	2.2	2.3
F33	F33	4	5	16.7	6.4%	0.9	1.3	5.2	8.3%	1.2	1.2	16.3	5.2%	0.7	1.2	2.1	2.1	2.2
F34	F34	7	5	14.1	-10.2%	-1.5	-1.8	4.4	-8.3%	-1.2	-1.2	14.2	-8.4%	-1.2	-1.5	1.8	1.9	2.0
Total participating laboratories = 29																		
Xa (Median)	-	6.5	-	15.7				4.8				15.5				2.1	2.1	2.2
u <sub>Xa</sub>	-	-	-	0.173				0.071				0.162				-	-	-
σ <sub>p</sub>	-	-	-	1.099				0.336				1.085				-	-	-
σ <sub>p'</sub>	-	-	-	-				-				-				-	-	-
Range	-	2-12	-	9.9-16.7				3.9-25.3				12.2-16.6				1.8-2.4	1.9-2.3	2.0-2.7
n	-	-	-	28				28				28				28	28	28
Mean	-	-	-	15.6				4.8				15.4				2.1	2.1	2.2
S.D.	-	-	-	0.83				0.34				0.78				0.09	0.14	0.13
C.V.	-	-	-	5.3%				7.1%				5.1%				4.3%	6.7%	5.9%

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 =  $(X - \text{Mean}) / SD$ ; 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 :  $|z| \leq 2$ ; Caution :  $2 < |z| \leq 3$ ; Unsatisfactory :  $|z| > 3$

Reagent Kit	G6PD Reagent Code	Lab
Medicon	5	F02, F03, F04, F05, F07, F09, F10, F11, F12, F13, F14, F15, F17, F18, F19, F21, F22, F24, F25, F26, F27, F28, F29, F30, F31, F32, F33, F34

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

Survey No : RH2022-01 (in green ●)

- Total participants' CV result plotted against surveys

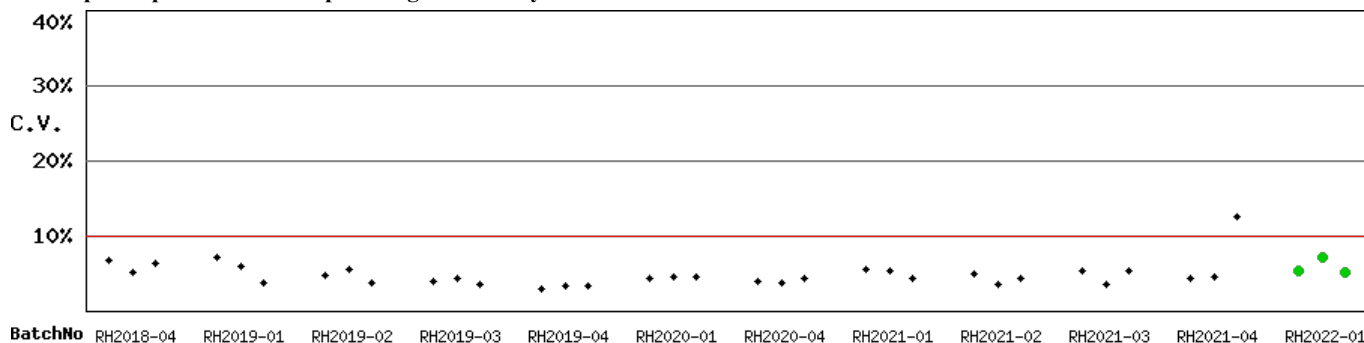


Fig RH-2.1

- Total participants' CV result plotted against G6PD activities

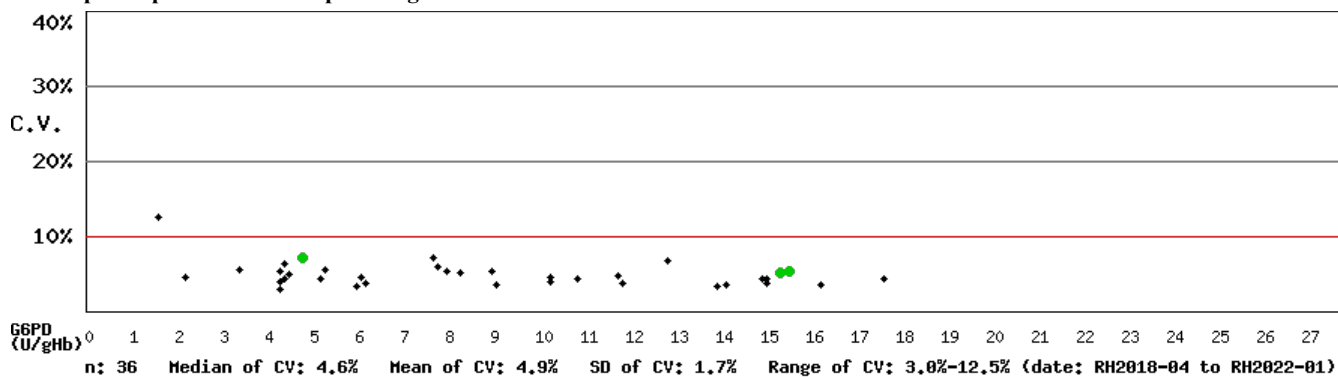


Fig RH-2.2

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

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(Report generated at 2022-03-08 09:41:19)

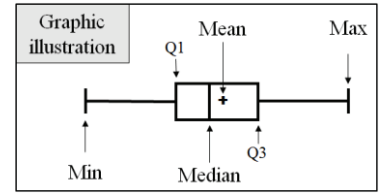
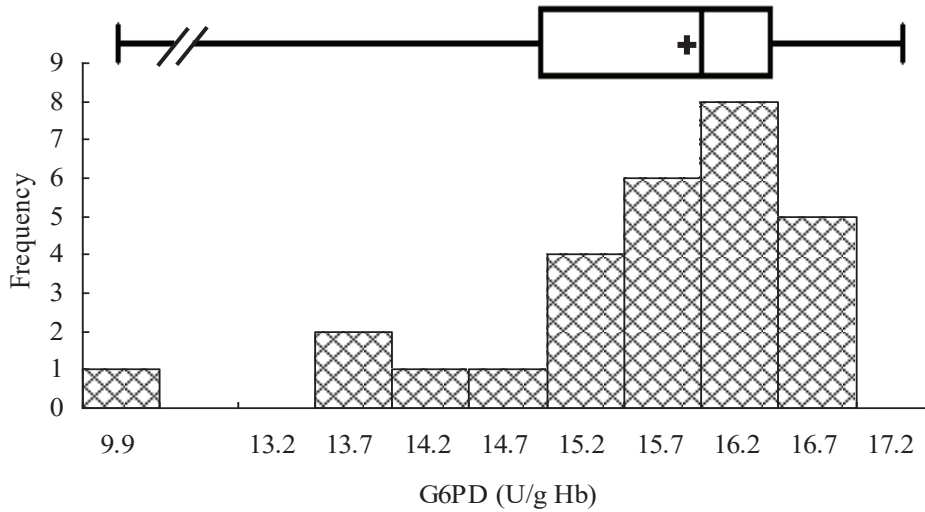
## RH2022-01 Distribution of G6PD Test Results

Survey No. : RH2022-01

Sample sent on : 2022/02/21

Reporting deadline : 2022/02/28

Results reported (%) : 96.6%



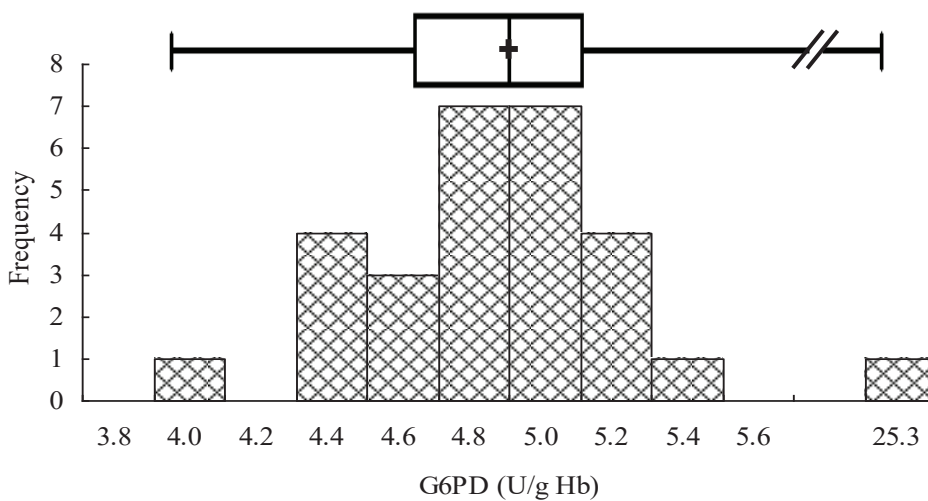
### Sample 1

**Median = 15.7 (n = 28)**

**Mean\* = 15.6 (n = 28)**

**SD\* = 0.83**

**CV = 5.3%**



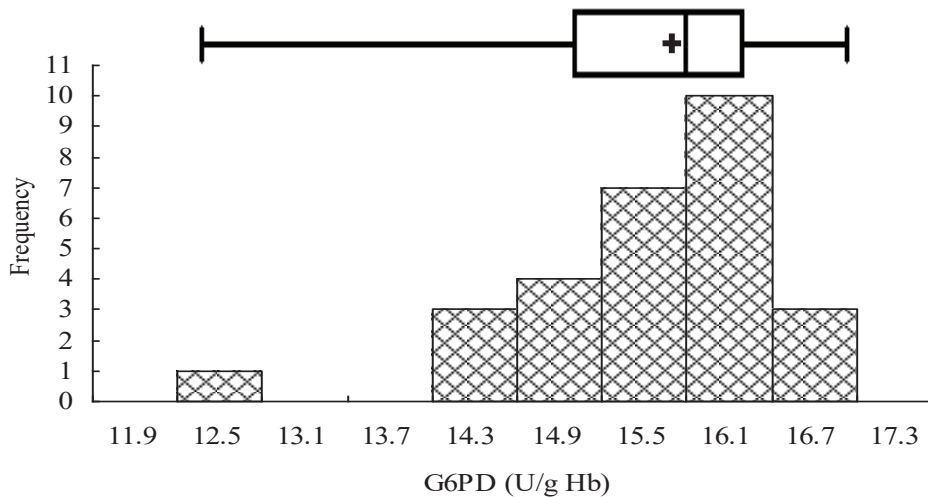
### Sample 2

**Median = 4.8 (n = 28)**

**Mean\* = 4.8 (n = 28)**

**SD\* = 0.34**

**CV = 7.1%**



### Sample 3

**Median = 15.5 (n = 28)**

**Mean\* = 15.4 (n = 28)**

**SD\* = 0.78**

**CV = 5.1%**

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

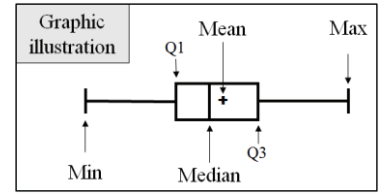
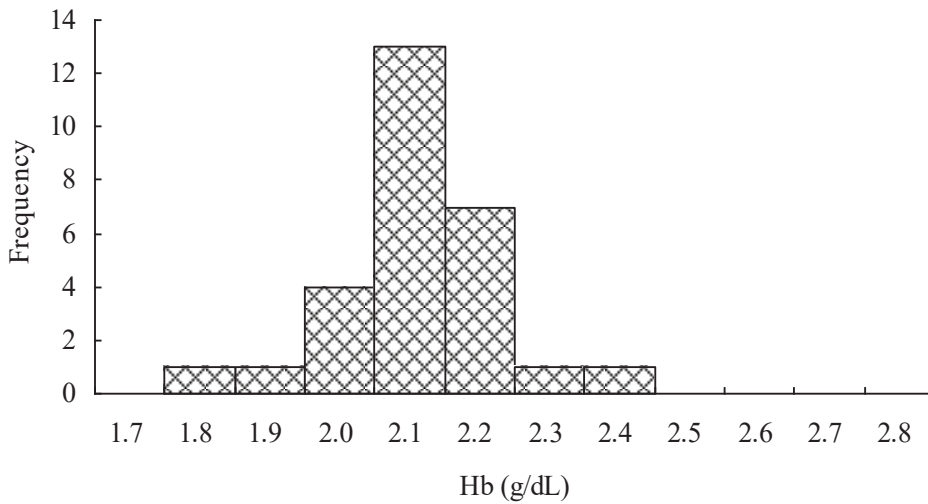
## RH2022-01 Distribution of Hb Test Results

Survey No. : RH2022-01

Sample sent on : 2022/02/21

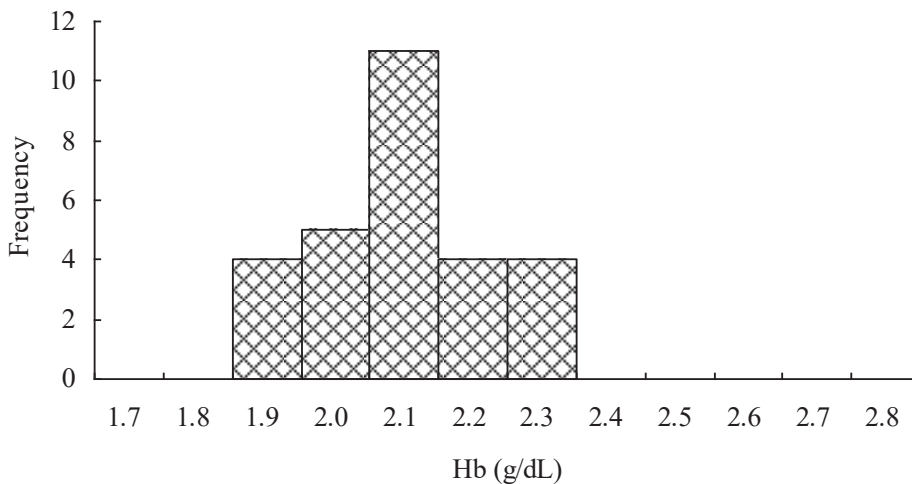
Reporting deadline : 2022/02/28

Results reported (%) : 96.6%



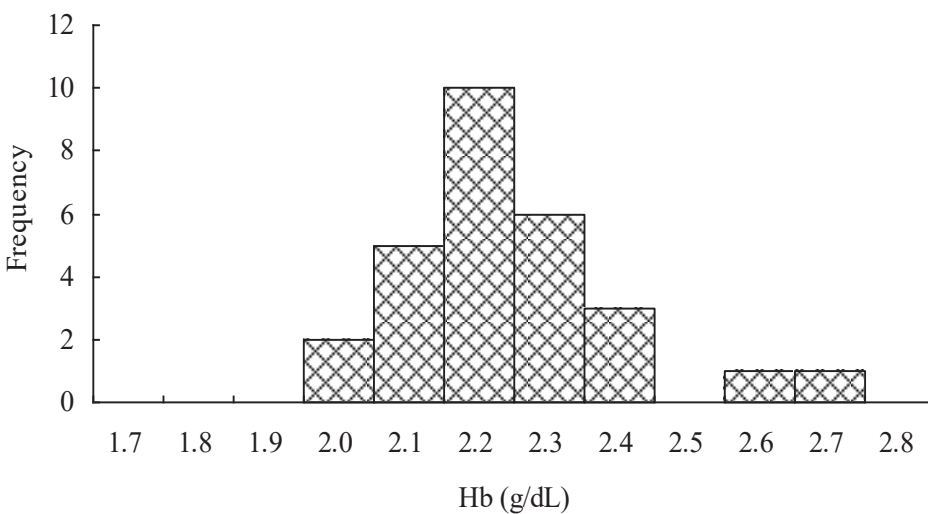
### Sample 1

**Median = 2.1 (n = 28)**  
**Mean\* = 2.1 (n = 28)**  
**SD\* = 0.09**  
**CV = 4.3%**



### Sample 2

**Median = 2.1 (n = 28)**  
**Mean\* = 2.1 (n = 28)**  
**SD\* = 0.14**  
**CV = 6.7%**



### Sample 3

**Median = 2.2 (n = 28)**  
**Mean\* = 2.2 (n = 28)**  
**SD\* = 0.13**  
**CV = 5.9%**

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