

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2022-02  
 Sample sent : 29 set

Sample sent on : 2022/05/30  
 Results reported (%) : 29 (100%)

Reporting deadline : 2022/06/06

- 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	2	5	5.4	1.9%	0.3	0.5	11.4	0.9%	0.1	0.2	4.9	0.0%	0.0	-0.5	2.2	2.2	2.1
F03	F03	7	5	5.5	3.8%	0.5	1.1	11.6	2.7%	0.4	0.7	5.1	4.1%	0.6	0.5	2.2	2.3	2.2
F04	F04	6	5	5.3	0.0%	0.0	0.0	11.2	-0.9%	-0.1	-0.3	4.9	0.0%	0.0	-0.5	2.5	2.6	2.6
F05	F05	6	5	5.2	-1.9%	-0.3	-0.5	11.5	1.8%	0.3	0.5	5.1	4.1%	0.6	0.5	2.3	2.4	2.3
F07	F07	7	5	5.4	1.9%	0.3	0.5	11.3	0.0%	0.0	0.0	5.1	4.1%	0.6	0.5	2.3	2.4	2.3
F09	F09	7	5	5.2	-1.9%	-0.3	-0.5	11.0	-2.7%	-0.4	-0.8	4.9	0.0%	0.0	-0.5	2.4	2.6	2.4
F10	F10	4	5	5.0	-5.7%	-0.8	-1.6	10.1	-10.6%	-1.5	-3.0	4.4	-10.2%	-1.5	-2.9	2.3	2.4	2.3
F11	F11	7	5	5.3	0.0%	0.0	0.0	11.2	-0.9%	-0.1	-0.3	5.1	4.1%	0.6	0.5	2.4	2.4	2.3
F12	F12	7	5	5.4	1.9%	0.3	0.5	11.8	4.4%	0.6	1.3	5.2	6.1%	0.9	1.0	2.1	2.3	2.2
F13	F13	5	5	4.9	-7.5%	-1.1	-2.1	10.7	-5.3%	-0.8	-1.5	4.6	-6.1%	-0.9	-1.9	2.3	2.4	2.3
F14	F14	7	5	5.2	-1.9%	-0.3	-0.5	11.0	-2.7%	-0.4	-0.8	4.9	0.0%	0.0	-0.5	2.3	2.4	2.2
F15	F15	5	5	5.4	1.9%	0.3	0.5	11.3	0.0%	0.0	0.0	5.0	2.0%	0.3	0.0	2.1	2.3	2.3
F17	F17	4	5	5.3	0.0%	0.0	0.0	11.3	0.0%	0.0	0.0	4.9	0.0%	0.0	-0.5	2.3	2.4	2.3
F18	F18	7	5	5.3	0.0%	0.0	0.0	11.3	0.0%	0.0	0.0	5.1	4.1%	0.6	0.5	2.3	2.4	2.2
F20	F20	4	5	5.3	0.0%	0.0	0.0	11.4	0.9%	0.1	0.2	5.1	4.1%	0.6	0.5	2.3	2.4	2.2
F21	F21	7	5	5.2	-1.9%	-0.3	-0.5	11.2	-0.9%	-0.1	-0.3	5.0	2.0%	0.3	0.0	2.3	2.3	2.2
F22	F22	3	5	4.9	-7.5%	-1.1	-2.1	10.3	-8.8%	-1.3	-2.5	4.6	-6.1%	-0.9	-1.9	2.3	2.4	2.3
F24	F24	7	5	5.9	11.3%	1.6	3.2	12.1	7.1%	1.0	2.0	5.2	6.1%	0.9	1.0	2.4	2.5	2.4
F25	F25	7	5	5.1	-3.8%	-0.5	-1.1	10.7	-5.3%	-0.8	-1.5	4.7	-4.1%	-0.6	-1.4	2.2	2.4	2.2
F26	F26	7	5	5.1	-3.8%	-0.5	-1.1	10.9	-3.5%	-0.5	-1.0	4.7	-4.1%	-0.6	-1.4	2.4	3.1	2.3
F27	F27	4	5	5.2	-1.9%	-0.3	-0.5	11.2	-0.9%	-0.1	-0.3	4.7	-4.1%	-0.6	-1.4	2.2	2.3	2.3
F28	F28	2	5	5.5	3.8%	0.5	1.1	11.5	1.8%	0.3	0.5	4.9	0.0%	0.0	-0.5	2.3	2.4	2.2
F29	F29	7	5	5.3	0.0%	0.0	0.0	11.0	-2.7%	-0.4	-0.8	4.9	0.0%	0.0	-0.5	2.3	2.4	2.4
F30	F30	5	5	5.6	5.7%	0.8	1.6	11.5	1.8%	0.3	0.5	5.2	6.1%	0.9	1.0	2.0	2.4	2.2
F31	F31	4	5	5.5	3.8%	0.5	1.1	11.4	0.9%	0.1	0.2	4.8	-2.0%	-0.3	-1.0	2.2	2.2	2.3
F32	F32	4	5	5.2	-1.9%	-0.3	-0.5	11.0	-2.7%	-0.4	-0.8	5.0	2.0%	0.3	0.0	2.2	2.4	2.3
F33	F33	4	5	5.8	9.4%	1.3	2.6	12.2	8.0%	1.1	2.3	5.3	8.2%	1.2	1.4	2.3	2.4	2.3
F34	F34	7	5	5.3	0.0%	0.0	0.0	11.8	4.4%	0.6	1.3	4.9	0.0%	0.0	-0.5	2.3	2.2	2.3
F35	F35	4	5	5.2	-1.9%	-0.3	-0.5	11.5	1.8%	0.3	0.5	5.1	4.1%	0.6	0.5	2.2	2.3	2.2
Total participating laboratories = 29																		
Xa (Median)	-	6	-	5.3				11.3				4.9				2.3	2.4	2.3
u <sub>Xa</sub>	-	-	-	0.039				0.082				0.043				-	-	-
σ <sub>p</sub>	-	-	-	0.371				0.791				0.343				-	-	-
σ <sub>p</sub> '	-	-	-	-				-				-				-	-	-
Range	-	2-7	-	4.9-5.9				10.1-12.2				4.4-5.3				2.0-2.5	2.2-3.1	2.1-2.6
n	-	-	-	29				29				29				29	29	29
Mean	-	-	-	5.3				11.3				5.0				2.3	2.4	2.3
S.D.	-	-	-	0.19				0.40				0.21				0.09	0.00	0.08
C.V.	-	-	-	3.6%				3.5%				4.2%				3.9%	0.0%	3.5%

Note:

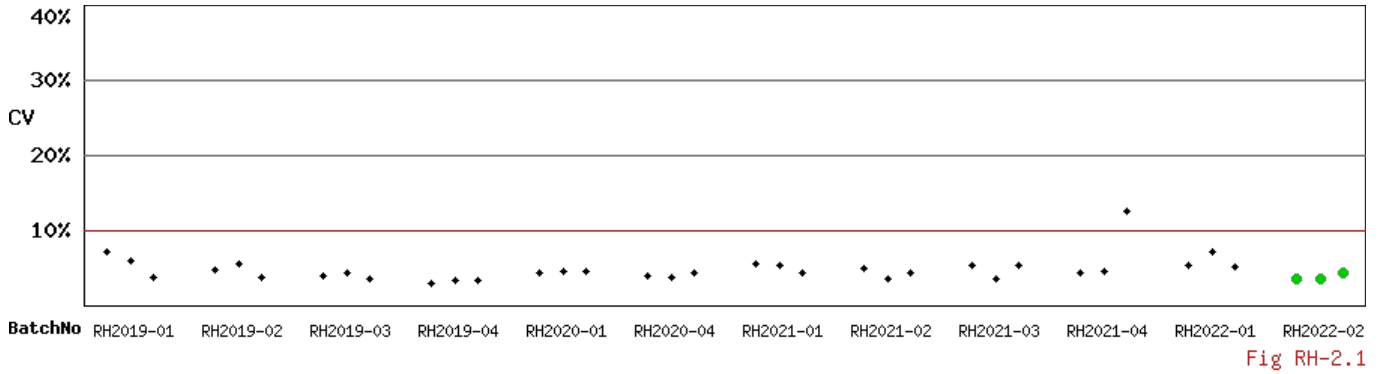
1.  $D\% = [(X - X_a) / X_a] \times 100\%$ ; X = Your Results, X<sub>a</sub> = Assigned value
2.  $u_{X_a}$  = uncertainty of the assigned value.  $u_{X_a} = 1.1 \times SD / n^{1/2}$
3. SD for proficiency assessment ( $\sigma_p$ ) = 7% x X<sub>a</sub>; but while X<sub>a</sub> < 2.9 U/gHb,  $\sigma_p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

<b>Reagent Kit</b>	<b>G6PD Reagent Code</b>	<b>Lab</b>
Medicon	5	F02, F03, F04, F05, F07, F09, F10, F11, F12, F13, F14, F15, F17, F18, F20, F21, F22, F24, F25, F26, F27, F28, F29, F30, F31, F32, F33, F34, F35

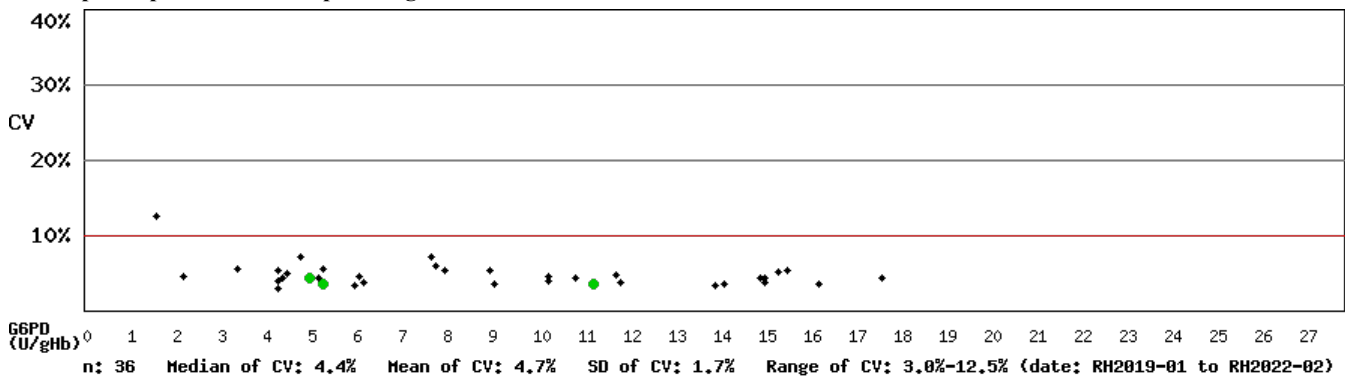
# Long Term Observation of Blood G6PD Quantitative Test EQA Survey Results

Survey No : RH2022-02 (in green ●)

- Total participants' CV result plotted against surveys



- Total participants' CV result plotted against G6PD activities



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

Kwang-Jen Hsiao, Ph.D.  
 Preventive Medicine Foundation  
 P.O. Box 624  
 Taipei Xinwei, Taipei City 10699, Taiwan

Tel : +886-2-2703-6080  
 Fax : +886-2-2703-6070  
 E-mail : g6pd@g6pd.tw  
 URL : <http://eqa.g6pd.tw>

(Report generated at 2022-06-06 16:11:40)

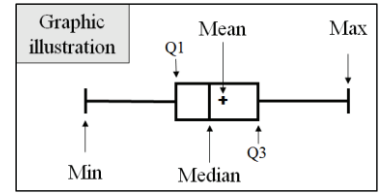
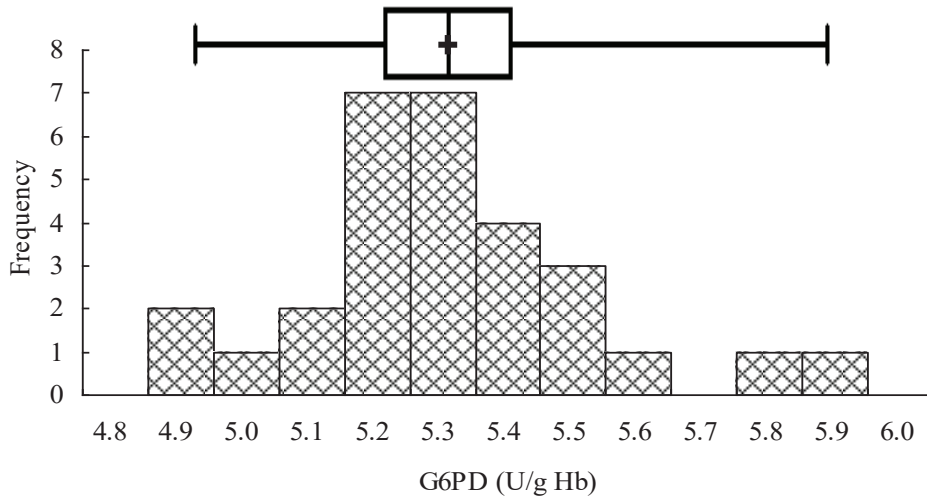
## RH2022-02 Distribution of G6PD Test Results

Survey No. : RH2022-02

Sample sent on : 2022/05/30

Reporting deadline : 2022/06/06

Results reported (%) : 100%



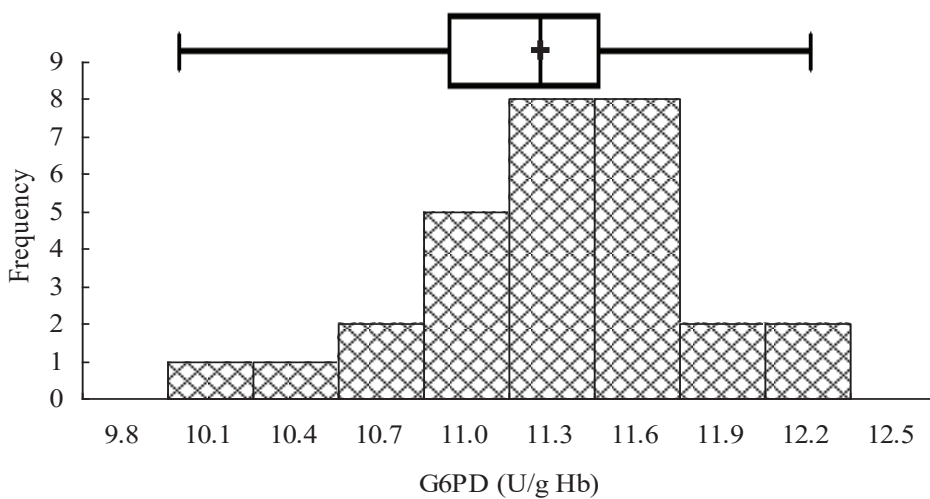
### Sample 1

**Median = 5.3 (n = 29)**

**Mean\* = 5.3 (n = 29)**

**SD\* = 0.19**

**CV = 3.6%**



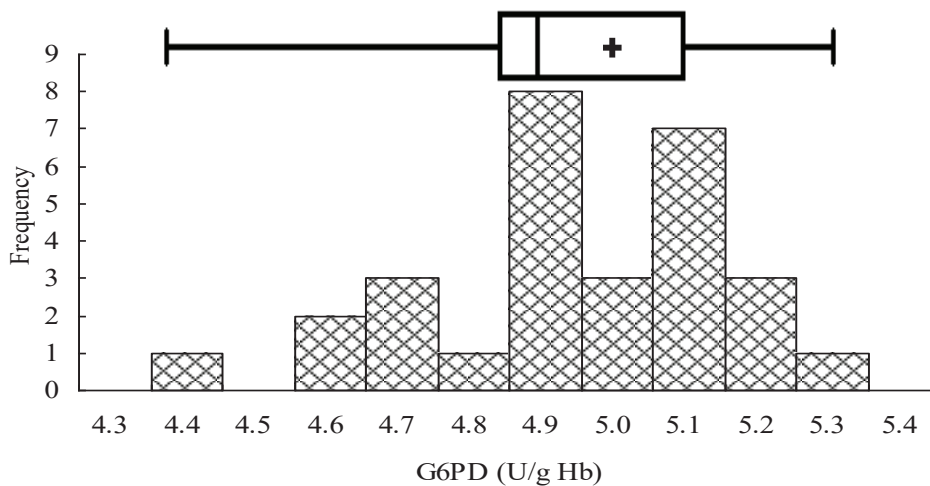
### Sample 2

**Median = 11.3 (n = 29)**

**Mean\* = 11.3 (n = 29)**

**SD\* = 0.40**

**CV = 3.5%**



### Sample 3

**Median = 4.9 (n = 29)**

**Mean\* = 5.0 (n = 29)**

**SD\* = 0.21**

**CV = 4.2%**

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

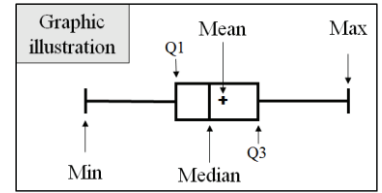
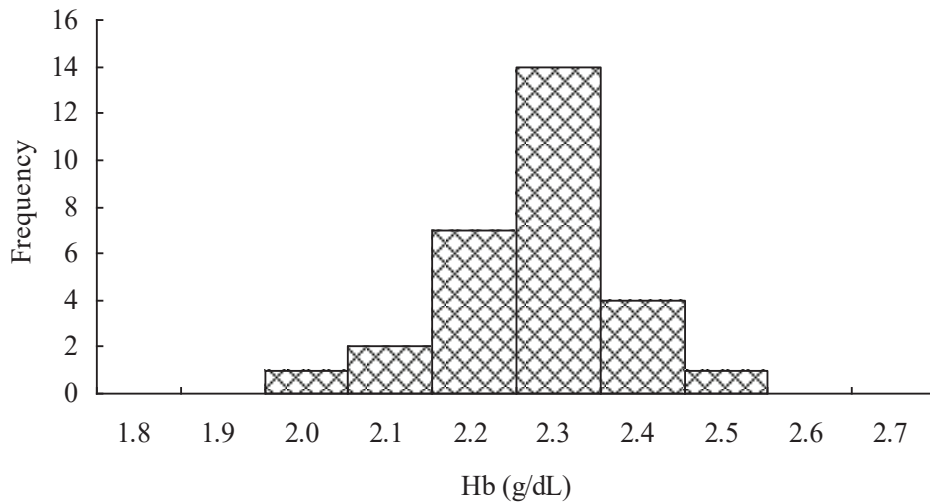
## RH2022-02 Distribution of Hb Test Results

Survey No. : RH2022-02

Sample sent on : 2022/05/30

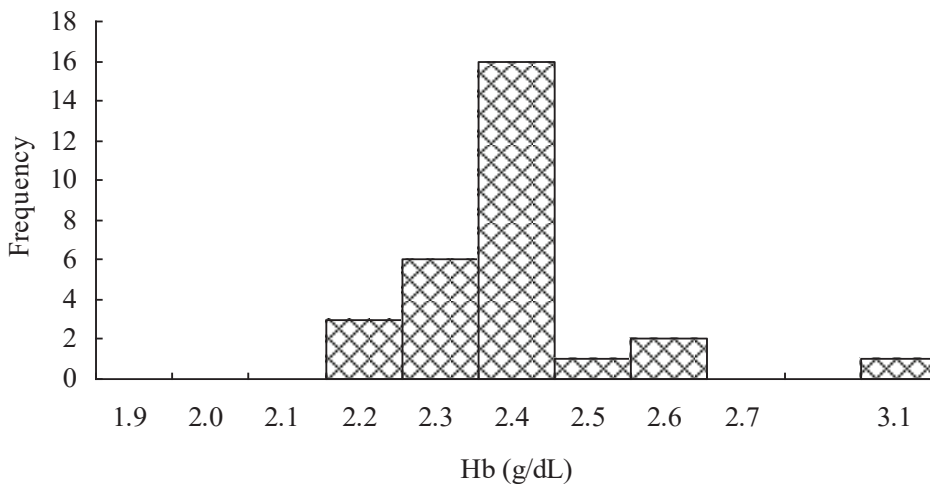
Reporting deadline : 2022/06/06

Results reported (%) : 100%



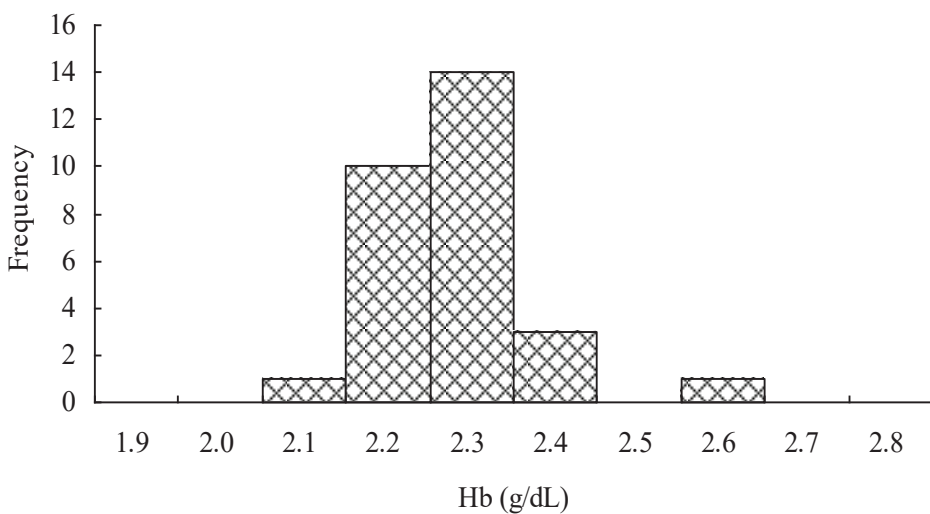
### Sample 1

**Median = 2.3 (n = 29)**  
**Mean\* = 2.3 (n = 29)**  
**SD\* = 0.09**  
**CV = 3.9%**



### Sample 2

**Median = 2.4 (n = 29)**  
**Mean\* = 2.4 (n = 29)**  
**SD\* = 0.00**  
**CV = 0.0%**



### Sample 3

**Median = 2.3 (n = 29)**  
**Mean\* = 2.3 (n = 29)**  
**SD\* = 0.08**  
**CV = 3.5%**

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