

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2019-01  
 Sample sent : [26 set](#)

Sample sent on : 2019/01/14  
 Results reported (%) : 26 (100%)

Reporting deadline : 2019/01/21

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- 2. [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 (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	<a href="#">5</a>	7.8	0.0%	0.0	0.2	7.7	-1.3%	-0.2	-0.2	15.0	-0.7%	-0.1	-0.2	1.8	1.8	2.2
F03	F03	2	<a href="#">5</a>	6.6	-15.4%	-2.2	-2.0	6.1	-21.8%	-3.1	-3.6	13.6	-9.9%	-1.4	-2.7	2.0	2.3	2.3
F04	F04	7	<a href="#">5</a>	7.6	-2.6%	-0.4	-0.2	7.7	-1.3%	-0.2	-0.2	15.0	-0.7%	-0.1	-0.2	2.0	2.3	2.9
F05	F05	4	<a href="#">5</a>	6.7	-14.1%	-2.0	-1.8	6.7	-14.1%	-2.0	-2.3	14.5	-4.0%	-0.6	-1.1	2.0	2.0	2.3
F07	F07	7	<a href="#">5</a>	8.6	10.3%	1.5	1.6	8.4	7.7%	1.1	1.3	15.0	-0.7%	-0.1	-0.2	1.8	1.8	2.3
F08	F08	2	<a href="#">5</a>	8.0	2.6%	0.4	0.5	8.1	3.8%	0.5	0.6	15.7	4.0%	0.6	1.1	1.7	1.9	2.5
F09	F09	7	<a href="#">5</a>	7.8	0.0%	0.0	0.2	7.5	-3.8%	-0.5	-0.6	15.1	0.0%	0.0	0.0	1.7	1.9	2.2
F10	F10	4	<a href="#">5</a>	7.6	-2.6%	-0.4	-0.2	7.4	-5.1%	-0.7	-0.9	15.1	0.0%	0.0	0.0	2.0	1.7	2.1
F11	F11	7	<a href="#">5</a>	7.9	1.3%	0.2	0.4	9.1	16.7%	2.4	2.8	16.8	11.3%	1.6	3.0	1.7	2.0	2.3
F12	F12	7	<a href="#">5</a>	8.4	7.7%	1.1	1.3	8.4	7.7%	1.1	1.3	15.6	3.3%	0.5	0.9	1.9	1.9	2.4
F13	F13	7	<a href="#">5</a>	8.2	5.1%	0.7	0.9	8.3	6.4%	0.9	1.1	15.6	3.3%	0.5	0.9	2.1	2.0	2.5
F14	F14	7	<a href="#">5</a>	7.8	0.0%	0.0	0.2	8.0	2.6%	0.4	0.4	15.5	2.6%	0.4	0.7	2.0	2.1	2.5
F15	F15	3	<a href="#">5</a>	7.6	-2.6%	-0.4	-0.2	7.4	-5.1%	-0.7	-0.9	14.5	-4.0%	-0.6	-1.1	1.9	1.9	2.2
F17	F17	4	<a href="#">5</a>	8.0	2.6%	0.4	0.5	8.0	2.6%	0.4	0.4	15.4	2.0%	0.3	0.5	1.8	1.9	2.3
F18	F18	3	<a href="#">5</a>	7.9	1.3%	0.2	0.4	7.8	0.0%	0.0	0.0	15.5	2.6%	0.4	0.7	1.8	1.8	2.2
F19	F19	4	<a href="#">5</a>	7.5	-3.8%	-0.5	-0.4	7.6	-2.6%	-0.4	-0.4	15.0	-0.7%	-0.1	-0.2	2.0	2.0	2.2
F20	F20	7	<a href="#">5</a>	8.2	5.1%	0.7	0.9	8.0	2.6%	0.4	0.4	15.0	-0.7%	-0.1	-0.2	2.0	1.9	2.4
F21	F21	7	<a href="#">5</a>	8.0	2.6%	0.4	0.5	7.9	1.3%	0.2	0.2	15.5	2.6%	0.4	0.7	1.7	1.8	2.1
F22	F22	9	<a href="#">5</a>	7.8	0.0%	0.0	0.2	7.7	-1.3%	-0.2	-0.2	14.6	-3.3%	-0.5	-0.9	1.8	1.8	2.3
F24	F24	7	<a href="#">5</a>	8.2	5.1%	0.7	0.9	8.2	5.1%	0.7	0.9	15.7	4.0%	0.6	1.1	1.7	1.7	2.1
F25	F25	7	<a href="#">5</a>	7.0	-10.3%	-1.5	-1.3	7.5	-3.8%	-0.5	-0.6	15.0	-0.7%	-0.1	-0.2	2.0	1.9	2.3
F26	F26	5	<a href="#">5</a>	7.2	-7.7%	-1.1	-0.9	7.1	-9.0%	-1.3	-1.5	14.3	-5.3%	-0.8	-1.4	1.9	1.8	2.3
F27	F27	3	<a href="#">5</a>	6.4	-17.9%	-2.6	-2.4	7.8	0.0%	0.0	0.0	14.8	-2.0%	-0.3	-0.5	2.1	1.8	2.2
F28	F28	7	<a href="#">5</a>	7.2	-7.7%	-1.1	-0.9	7.3	-6.4%	-0.9	-1.1	14.2	-6.0%	-0.9	-1.6	2.1	1.8	2.4
F29	F29	7	<a href="#">5</a>	7.2	-7.7%	-1.1	-0.9	7.9	1.3%	0.2	0.2	15.8	4.6%	0.7	1.3	2.0	1.8	2.2
F30	F30	4	<a href="#">5</a>	7.3	-6.4%	-0.9	-0.7	7.4	-5.1%	-0.7	-0.9	15.1	0.0%	0.0	0.0	1.8	1.7	2.1
Total participating laboratories = 26																		
Xa (Median)	-	7	-	7.8				7.8				15.1				1.9	1.9	2.3
u <sub>Xa</sub>	-	-	-	0.119				0.101				0.121				-	-	-
σ <sub>p</sub>	-	-	-	0.546				0.546				1.057				-	-	-
σ <sub>p'</sub>	-	-	-	-				-				-				-	-	-
Range	-	2-9	-	6.4-8.6				6.1-9.1				13.6-16.8				1.7-2.1	1.7-2.3	2.1-2.9
n	-	-	-	26				26				26				26	26	26
Mean	-	-	-	7.7				7.8				15.1				1.9	1.9	2.3
S.D.	-	-	-	0.55				0.47				0.56				0.16	0.13	0.15
C.V.	-	-	-	7.1%				6.0%				3.7%				8.4%	6.8%	6.5%

Note:

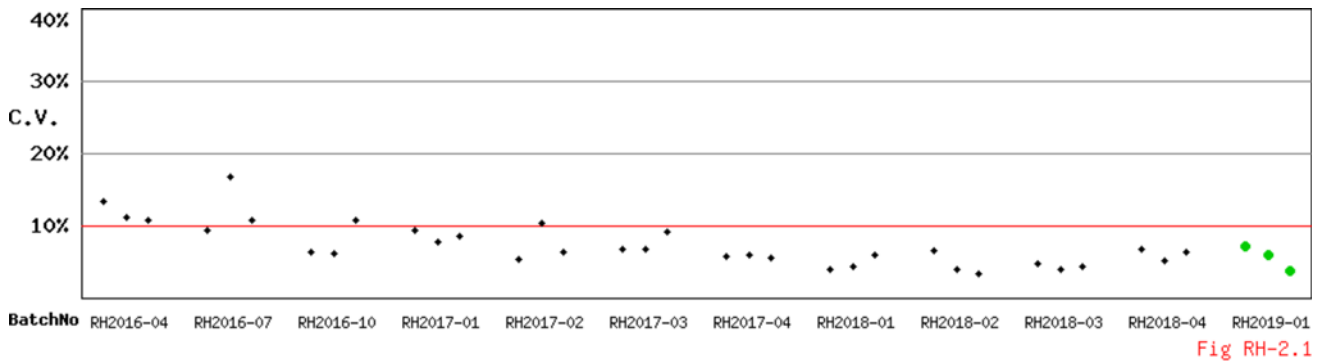
1.  $D\% = [(X - X_a) / X_a] \times 100\%$ ; X = Your Results, X<sub>a</sub> = Assigned value
2.  $u_{X_a} =$  uncertainty of the assigned value.  $u_{X_a} = 1.1 \times SD / n^{1/2}$
3. SD for proficiency assessment ( $\sigma_p$ ) = 7% x X<sub>a</sub>; but while X<sub>a</sub> < 2.9 U/gHb,  $\sigma_p = 0.2$  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 :  $|z| > 3$
10. Maximum Allowable Deviation (MAD) =  $3 \times (\sigma_p / X_a) \times 100\%$  or  $3 \times (\sigma_{p'} / X_a) \times 100\%$  when  $u_{X_a} \geq 0.3 \sigma_p$

Reagent Kit	G6PD Reagent Code	Lab
Medicon	5	F02, F03, F04, F05, F07, F08, F09, F10, F11, F12, F13, F14, F15, F17, F18, F19, F20, F21, F22, F24, F25, F26, F27, F28, F29, F30

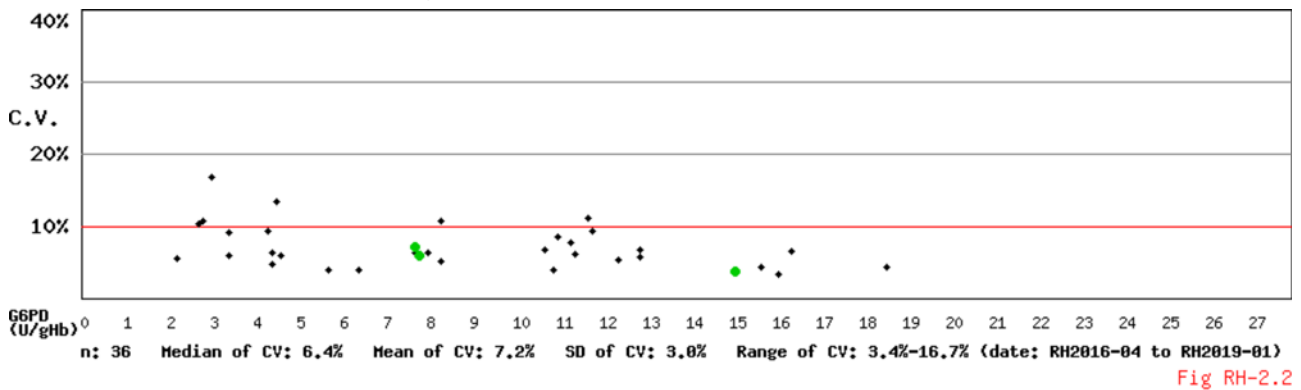
# Long Term Observation of Blood G6PD Quantitative Test EQA Survey Results

Survey No : RH2019-01 (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

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(Report generated at 2019-01-23 17:24:55)

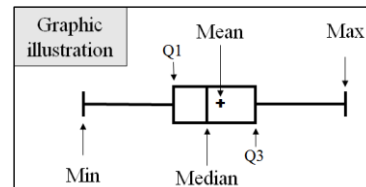
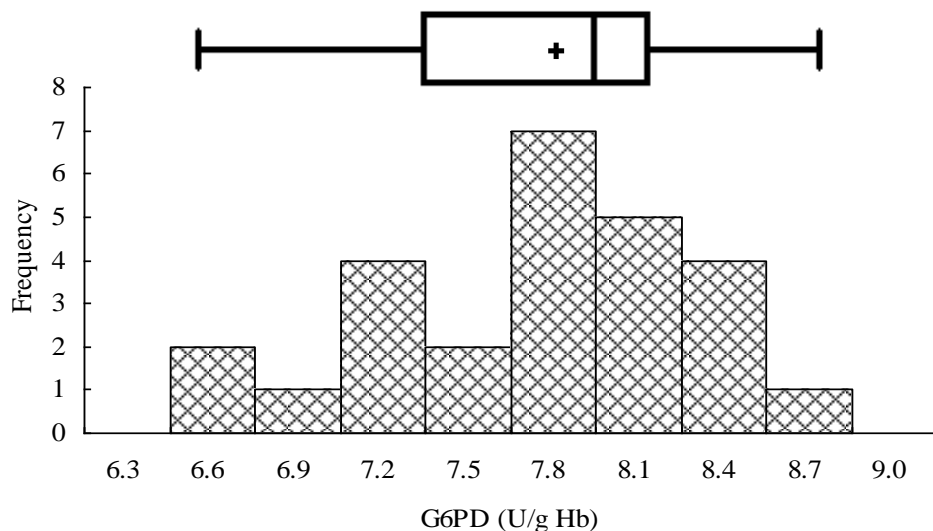
# RH2019-01 Distribution of G6PD Test Results

Survey No. : RH2019-01

Sample sent on : 2019/01/14

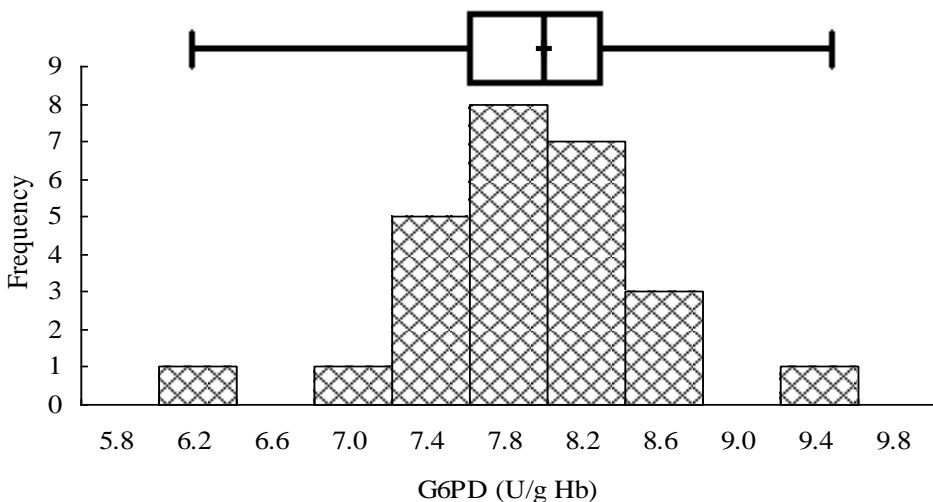
Reporting deadline : 2019/01/21

Results reported (%) : 100%



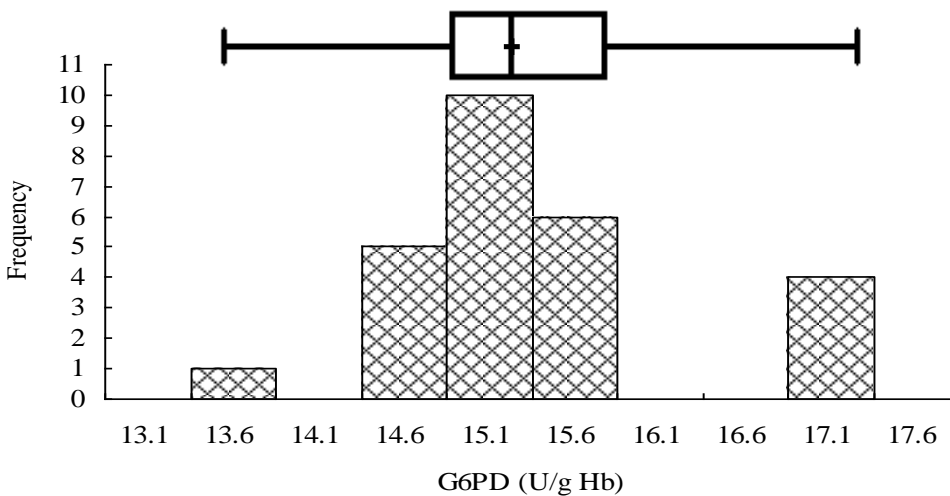
## Sample 1

**Median = 7.8 (n = 26)**  
**Mean\* = 7.7 (n = 26)**  
**SD\* = 0.55**  
**CV = 7.1%**



## Sample 2

**Median = 7.8 (n = 26)**  
**Mean\* = 7.8 (n = 26)**  
**SD\* = 0.47**  
**CV = 6.0%**



## Sample 3

**Median = 15.1 (n = 26)**  
**Mean\* = 15.1 (n = 26)**  
**SD\* = 0.56**  
**CV = 3.7%**

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

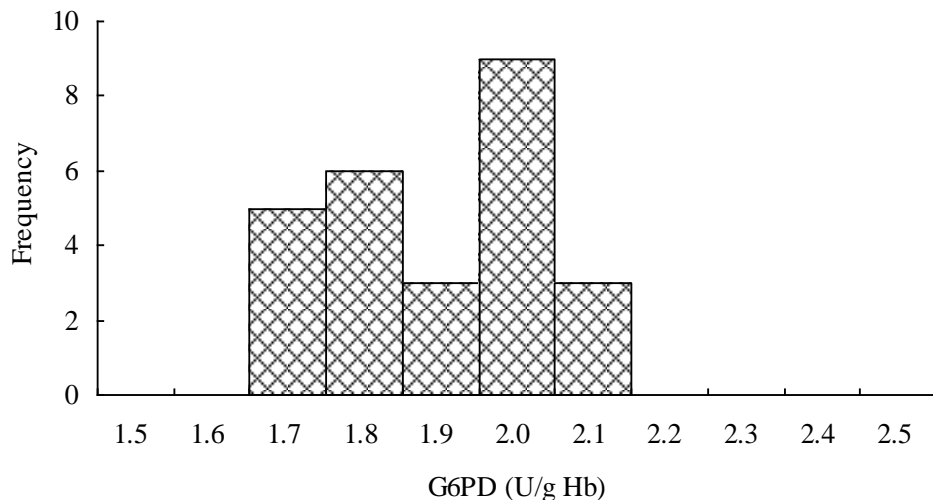
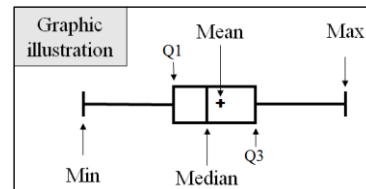
# RH2019-01 Distribution of Hb Test Results

Survey No. : RH2019-01

Sample sent on : 2019/01/14

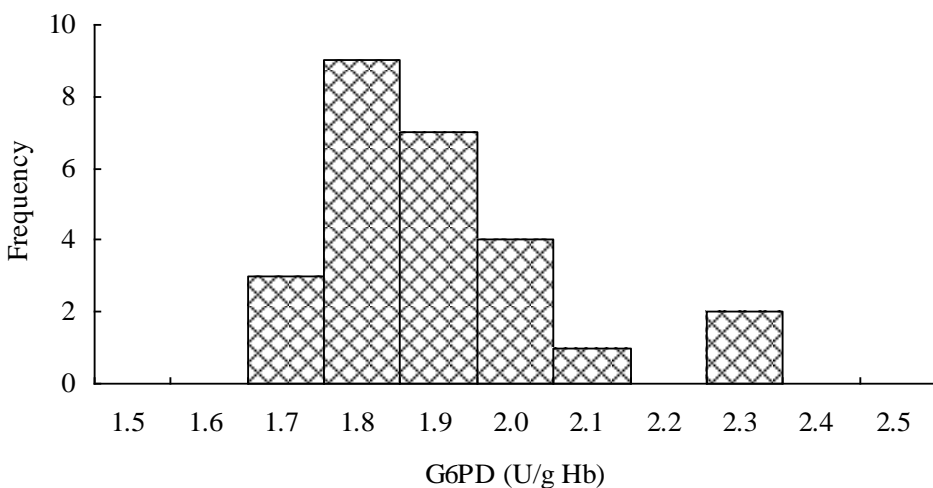
Reporting deadline : 2019/01/21

Results reported (%) : 100%



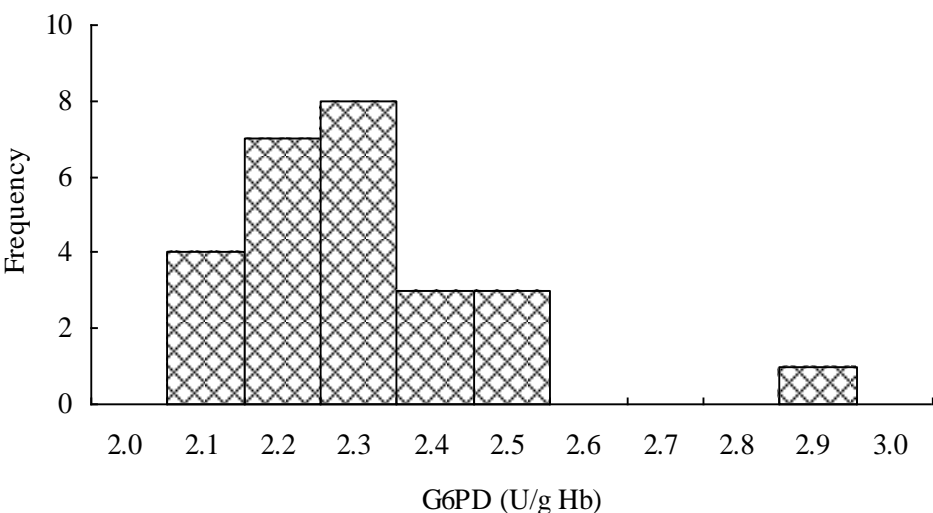
### Sample 1

**Median = 1.9 (n = 26)**  
**Mean\* = 1.9 (n = 26)**  
**SD\* = 0.16**  
**CV = 8.4%**



### Sample 2

**Median = 1.9 (n = 26)**  
**Mean\* = 1.9 (n = 26)**  
**SD\* = 0.13**  
**CV = 6.8%**



### Sample 3

**Median = 2.3 (n = 26)**  
**Mean\* = 2.3 (n = 26)**  
**SD\* = 0.15**  
**CV = 6.5%**

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