

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2019-03
 Sample sent : 29 set

Sample sent on : 2019/07/15
 Results reported (%) : 29 (100%)

Reporting deadline : 2019/07/22

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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	2	5	10.6	1.9%	0.3	0.7	5.3	0.0%	0.0	0.4	14.4	1.4%	0.2	0.4	1.7	2.1	1.8
F03	F03	5	5	9.8	-5.8%	-0.8	-1.3	5.0	-5.7%	-0.8	-0.9	14.1	-0.7%	-0.1	-0.2	1.8	2.1	1.8
F04	F04	6	5	10.1	-2.9%	-0.4	-0.5	5.3	0.0%	0.0	0.4	14.2	0.0%	0.0	0.0	1.9	2.3	2.0
F05	F05	4	5	9.9	-4.8%	-0.7	-1.0	4.9	-7.5%	-1.1	-1.3	13.8	-2.8%	-0.4	-0.8	1.8	2.2	1.9
F07	F07	7	5	10.2	-1.9%	-0.3	-0.3	5.3	0.0%	0.0	0.4	13.8	-2.8%	-0.4	-0.8	2.0	2.4	2.1
F08	F08	6	5	10.3	-1.0%	-0.1	0.0	5.3	0.0%	0.0	0.4	14.0	-1.4%	-0.2	-0.4	1.9	2.3	2.0
F09	F09	6	5	10.6	1.9%	0.3	0.7	5.3	0.0%	0.0	0.4	14.6	2.8%	0.4	0.8	1.7	1.9	1.7
F10	F10	3	5	9.8	-5.8%	-0.8	-1.3	5.1	-3.8%	-0.5	-0.4	14.0	-1.4%	-0.2	-0.4	1.6	1.8	1.6
F11	F11	7	5	9.7	-6.7%	-1.0	-1.5	5.1	-3.8%	-0.5	-0.4	13.6	-4.2%	-0.6	-1.2	1.8	2.2	1.9
F12	F12	7	5	10.8	3.8%	0.5	1.3	5.7	7.5%	1.1	2.2	15.1	6.3%	0.9	1.8	1.8	2.3	2.0
F13	F13	7	5	10.3	-1.0%	-0.1	0.0	5.0	-5.7%	-0.8	-0.9	14.1	-0.7%	-0.1	-0.2	2.3	2.4	1.8
F14	F14	7	5	10.2	-1.9%	-0.3	-0.3	5.2	-1.9%	-0.3	0.0	14.0	-1.4%	-0.2	-0.4	1.8	2.2	1.9
F15	F15	7	5	10.0	-3.8%	-0.5	-0.8	4.9	-7.5%	-1.1	-1.3	14.0	-1.4%	-0.2	-0.4	1.8	2.1	1.8
F17	F17	4	5	10.5	1.0%	0.1	0.5	5.4	1.9%	0.3	0.9	14.7	3.5%	0.5	1.0	1.8	2.1	1.8
F18	F18	4	5	10.8	3.8%	0.5	1.3	6.1	15.1%	2.2	3.9	14.9	4.9%	0.7	1.4	1.0	2.0	2.0
F19	F19	4	5	10.5	1.0%	0.1	0.5	5.4	1.9%	0.3	0.9	14.7	3.5%	0.5	1.0	1.8	2.0	1.8
F20	F20	6	5	9.9	-4.8%	-0.7	-1.0	4.8	-9.4%	-1.3	-1.7	12.9	-9.2%	-1.3	-2.7	1.8	2.0	1.9
F21	F21	7	5	10.5	1.0%	0.1	0.5	5.1	-3.8%	-0.5	-0.4	14.2	0.0%	0.0	0.0	1.8	2.1	1.8
F22	F22	3	5	10.4	0.0%	0.0	0.2	5.3	0.0%	0.0	0.4	15.3	7.7%	1.1	2.2	1.7	2.1	1.8
F24	F24	2	5	10.4	0.0%	0.0	0.2	5.2	-1.9%	-0.3	0.0	14.0	-1.4%	-0.2	-0.4	1.8	2.1	1.9
F25	F25	4	5	10.5	1.0%	0.1	0.5	5.3	0.0%	0.0	0.4	14.7	3.5%	0.5	1.0	1.7	2.1	1.8
F26	F26	3	5	10.2	-1.9%	-0.3	-0.3	5.4	1.9%	0.3	0.9	14.5	2.1%	0.3	0.6	1.7	2.0	1.7
F27	F27	2	5	10.4	0.0%	0.0	0.2	4.9	-7.5%	-1.1	-1.3	14.4	1.4%	0.2	0.4	1.8	2.3	1.9
F28	F28	3	5	11.0	5.8%	0.8	1.8	5.3	0.0%	0.0	0.4	14.6	2.8%	0.4	0.8	2.2	2.1	1.7
F29	F29	7	5	10.2	-1.9%	-0.3	-0.3	4.9	-7.5%	-1.1	-1.3	14.1	-0.7%	-0.1	-0.2	1.8	2.2	1.9
F30	F30	5	5	10.4	0.0%	0.0	0.2	5.3	0.0%	0.0	0.4	14.4	1.4%	0.2	0.4	1.7	2.0	1.8
F31	F31	2	5	10.8	3.8%	0.5	1.3	5.4	1.9%	0.3	0.9	14.5	2.1%	0.3	0.6	1.8	2.2	1.8
F32	F32	4	5	9.8	-5.8%	-0.8	-1.3	4.9	-7.5%	-1.1	-1.3	13.6	-4.2%	-0.6	-1.2	1.8	2.2	1.9
F33	F33	4	5	11.9	14.4%	2.1	4.0	5.1	-3.8%	-0.5	-0.4	13.1	-7.7%	-1.1	-2.2	1.9	2.1	1.8
Total participating laboratories = 29																		
Xa (Median)	-	4	-	10.4				5.3				14.2				1.8	2.1	1.8
u _{Xa}	-	-	-	0.082				0.047				0.100				-	-	-
σ _p	-	-	-	0.728				0.371				0.994				-	-	-
σ _p '	-	-	-	-				-				-				-	-	-
Range	-	2-7	-	9.7-11.9				4.8-6.1				12.9-15.3				1.0-2.3	1.8-2.4	1.6-2.1
n	-	-	-	29				29				29				29	29	29
Mean	-	-	-	10.3				5.2				14.2				1.8	2.1	1.8
S.D.	-	-	-	0.40				0.23				0.49				0.00	0.14	0.11
C.V.	-	-	-	3.9%				4.4%				3.5%				0.0%	6.7%	6.1%

Note:

1. $D\% = [(X - X_a) / X_a] \times 100\%$; X = Your Results, X_a = Assigned value
2. u_{Xa} = uncertainty of the assigned value. $u_{Xa} = 1.1 \times SD / n^{1/2}$
3. SD for proficiency assessment (σ_p) = 7% x X_a; but while X_a < 2.9 U/gHb, σ_p = 0.2 U/gHb
4. Adjusted SD for proficiency assessment (σ_p') = (σ_p² + u_{Xa}²)^{1/2}. σ_p' is used for proficiency assessment when u_{Xa} ≥ 0.3σ_p
5. z score = D / σ_p; D = X - X_a, σ_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_a) 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
10. Maximum Allowable Deviation (MAD) = 3 x (σ_p / X_a) x 100% or 3 x (σ_p' / X_a) x 100% when u_{Xa} ≥ 0.3σ_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, F31, F32, F33

Long Term Observation of Blood G6PD Quantitative Test EQA Survey Results

Survey No : RH2019-03 (in green ●)

- Total participants' CV result plotted against surveys

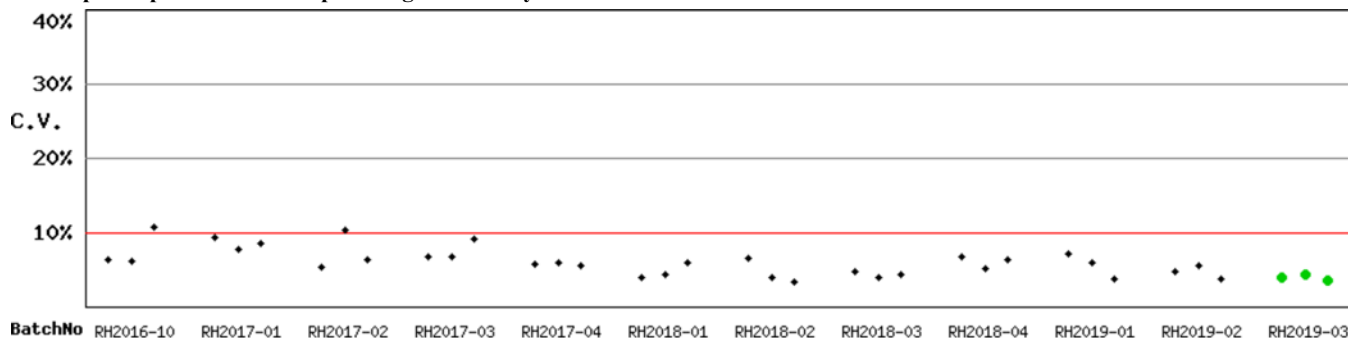


Fig RH-2.1

- Total participants' CV result plotted against G6PD activities

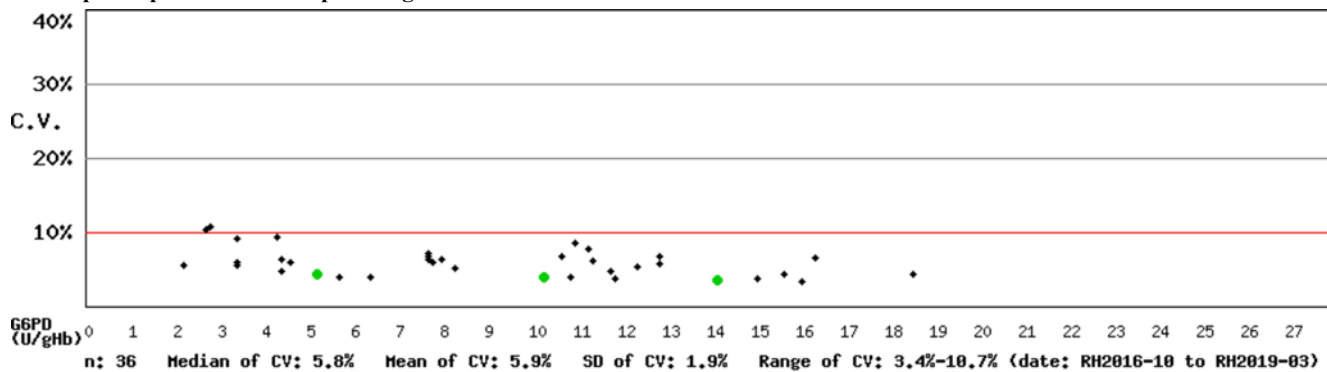


Fig RH-2.2

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

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 2019-07-23 10:17:26)

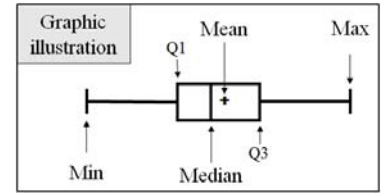
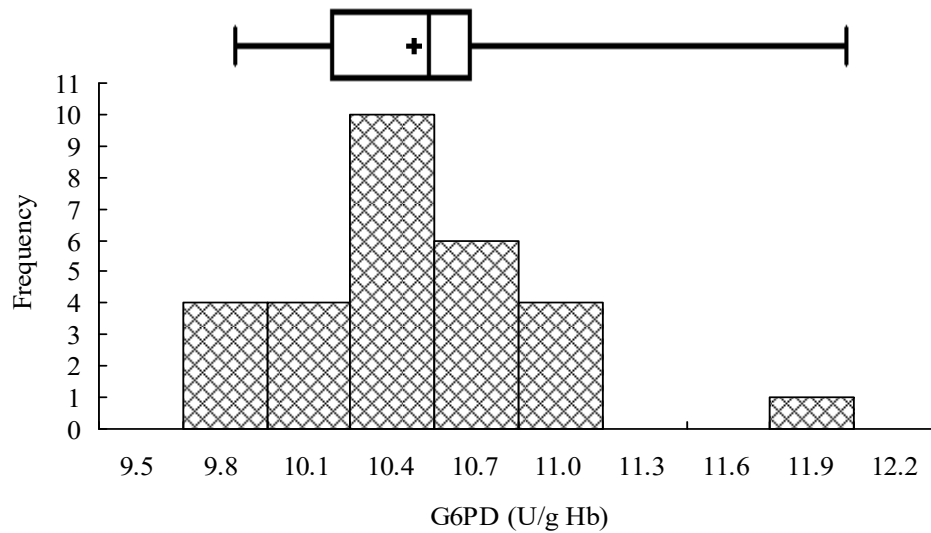
RH2019-03 Distribution of G6PD Test Results

Survey No. : RH2019-03

Sample sent on : 2019/07/15

Reporting deadline : 2019/07/22

Results reported (%) : 100%



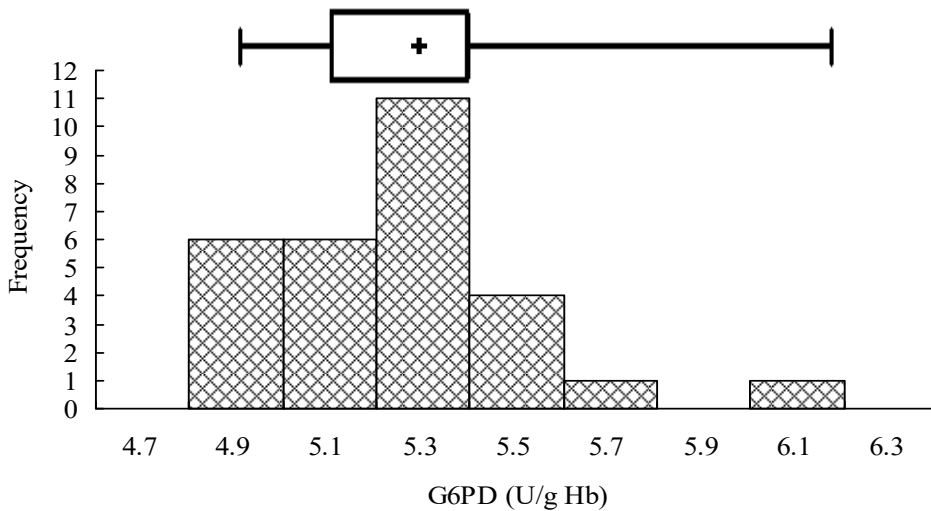
Sample 1

Median = 10.4 (n = 29)

Mean* = 10.3 (n = 29)

SD* = 0.40

CV = 3.9%



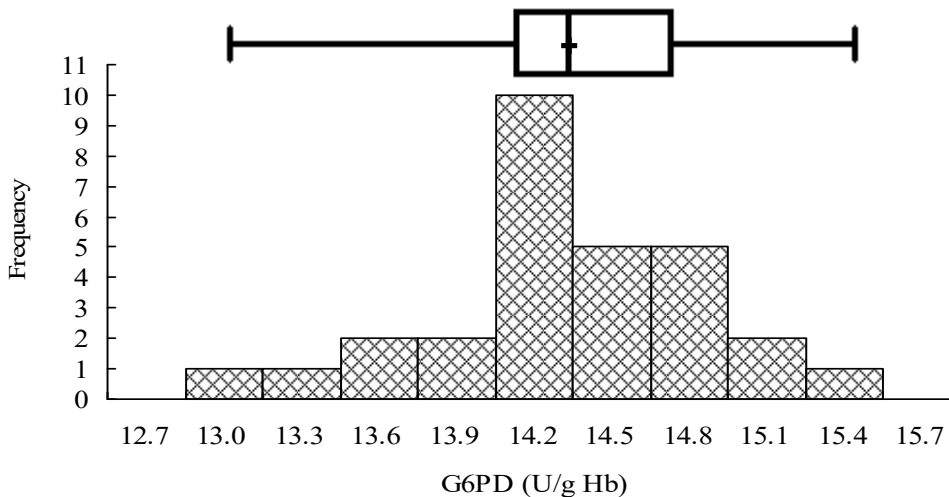
Sample 2

Median = 5.3 (n = 29)

Mean* = 5.2 (n = 29)

SD* = 0.23

CV = 4.4%



Sample 3

Median = 14.2 (n = 29)

Mean* = 14.2 (n = 29)

SD* = 0.49

CV = 3.5%

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

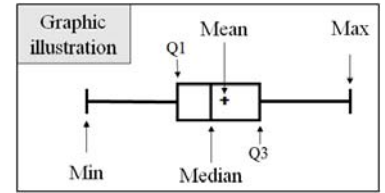
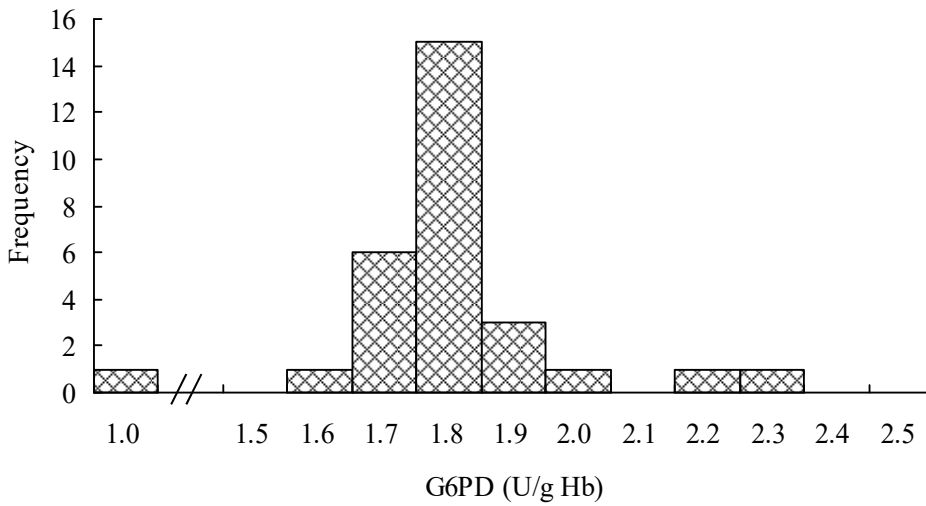
RH2019-03 Distribution of Hb Test Results

Survey No. : RH2019-03

Sample sent on : 2019/07/15

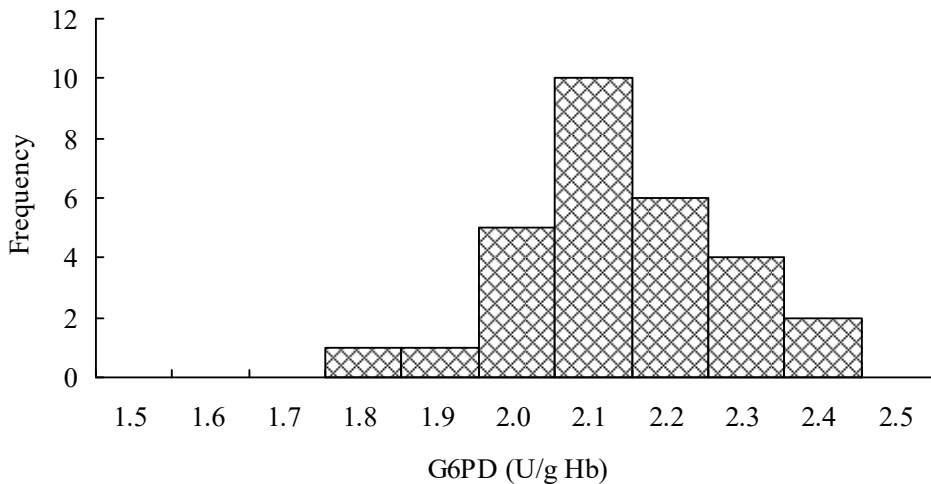
Reporting deadline : 2019/07/22

Results reported (%) : 100%



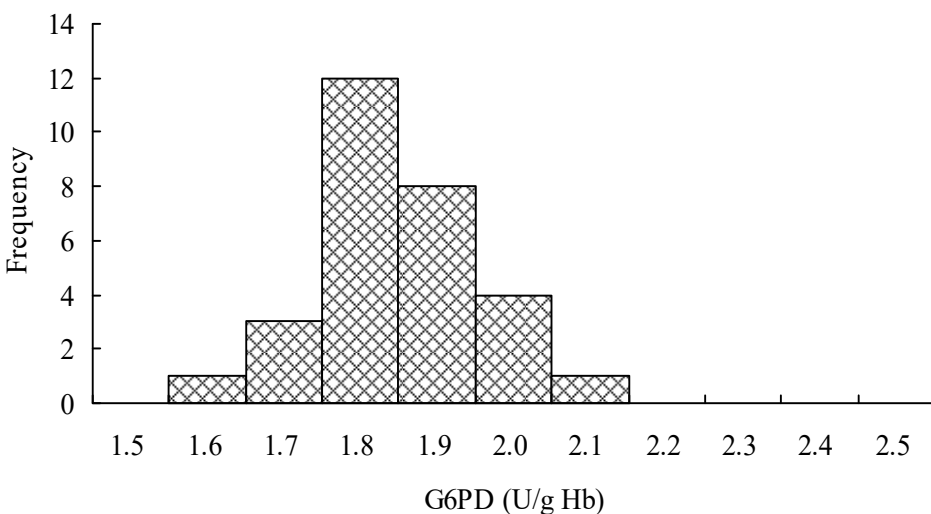
Sample 1

Median = 1.8 (n = 29)
Mean* = 1.8 (n = 29)
SD* = 0.00
CV = 0.0%



Sample 2

Median = 2.1 (n = 29)
Mean* = 2.1 (n = 29)
SD* = 0.14
CV = 6.7%



Sample 3

Median = 1.8 (n = 29)
Mean* = 1.8 (n = 29)
SD* = 0.11
CV = 6.1%

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