

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2020-04
 Sample sent : 25 set

Sample sent on : 2020/11/10
 Results reported (%) : 25 (100%)

Reporting deadline : 2020/11/17

- 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	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	3	5	4.5	4.7%	0.7	1.2	6.3	1.6%	0.2	0.4	15.5	4.0%	0.6	0.8	2.4	2.0	2.1
F03	F03	3	5	4.4	2.3%	0.3	0.6	6.1	-1.6%	-0.2	-0.4	15.4	3.4%	0.5	0.6	2.2	2.0	2.1
F04	F04	5	5	4.3	0.0%	0.0	0.0	6.2	0.0%	0.0	0.0	14.9	0.0%	0.0	-0.2	2.7	2.2	2.4
F05	F05	5	5	4.2	-2.3%	-0.3	-0.6	6.1	-1.6%	-0.2	-0.4	14.9	0.0%	0.0	-0.2	2.4	2.0	2.3
F07	F07	6	5	4.2	-2.3%	-0.3	-0.6	6.1	-1.6%	-0.2	-0.4	14.3	-4.0%	-0.6	-1.1	2.6	2.2	2.4
F09	F09	7	5	4.5	4.7%	0.7	1.2	6.1	-1.6%	-0.2	-0.4	15.5	4.0%	0.6	0.8	2.3	2.0	2.1
F10	F10	7	5	4.3	0.0%	0.0	0.0	6.6	6.5%	0.9	1.7	14.7	-1.3%	-0.2	-0.5	2.4	2.0	2.2
F11	F11	6	5	4.3	0.0%	0.0	0.0	6.0	-3.2%	-0.5	-0.9	14.5	-2.7%	-0.4	-0.8	2.6	2.2	2.2
F12	F12	6	5	4.6	7.0%	1.0	1.8	6.6	6.5%	0.9	1.7	15.9	6.7%	1.0	1.4	2.5	2.1	2.3
F14	F14	7	5	4.5	4.7%	0.7	1.2	6.4	3.2%	0.5	0.9	15.1	1.3%	0.2	0.2	2.5	2.1	2.3
F15	F15	3	5	3.9	-9.3%	-1.3	-2.4	5.6	-9.7%	-1.4	-2.6	13.8	-7.4%	-1.1	-1.9	2.4	2.1	2.3
F17	F17	6	5	4.3	0.0%	0.0	0.0	6.4	3.2%	0.5	0.9	15.4	3.4%	0.5	0.6	2.3	2.1	2.2
F18	F18	4	5	4.5	4.7%	0.7	1.2	6.4	3.2%	0.5	0.9	14.8	-0.7%	-0.1	-0.3	2.0	2.0	2.0
F20	F20	3	5	4.1	-4.7%	-0.7	-1.2	5.8	-6.5%	-0.9	-1.7	14.6	-2.0%	-0.3	-0.6	2.2	2.0	2.0
F21	F21	7	5	4.3	0.0%	0.0	0.0	6.2	0.0%	0.0	0.0	14.7	-1.3%	-0.2	-0.5	2.5	2.0	2.2
F22	F22	4	5	4.2	-2.3%	-0.3	-0.6	6.2	0.0%	0.0	0.0	14.9	0.0%	0.0	-0.2	2.4	2.0	2.2
F24	F24	6	5	4.4	2.3%	0.3	0.6	6.3	1.6%	0.2	0.4	15.3	2.7%	0.4	0.5	2.5	2.1	2.6
F26	F26	7	5	4.1	-4.7%	-0.7	-1.2	5.8	-6.5%	-0.9	-1.7	14.0	-6.0%	-0.9	-1.6	2.4	1.9	2.0
F27	F27	4	5	4.3	0.0%	0.0	0.0	6.1	-1.6%	-0.2	-0.4	14.8	-0.7%	-0.1	-0.3	2.4	2.1	2.2
F28	F28	7	5	4.4	2.3%	0.3	0.6	6.3	1.6%	0.2	0.4	15.9	6.7%	1.0	1.4	2.4	2.1	2.2
F29	F29	7	5	4.4	2.3%	0.3	0.6	6.2	0.0%	0.0	0.0	14.8	-0.7%	-0.1	-0.3	2.4	2.0	2.3
F30	F30	5	5	4.5	4.7%	0.7	1.2	6.2	0.0%	0.0	0.0	15.9	6.7%	1.0	1.4	2.4	2.0	2.1
F31	F31	2	5	4.6	7.0%	1.0	1.8	6.6	6.5%	0.9	1.7	16.0	7.4%	1.1	1.6	2.6	2.1	2.2
F32	F32	6	5	4.3	0.0%	0.0	0.0	6.0	-3.2%	-0.5	-0.9	14.5	-2.7%	-0.4	-0.8	2.5	2.1	2.2
F34	F34	2	5	4.4	2.3%	0.3	0.6	6.1	-1.6%	-0.2	-0.4	15.2	2.0%	0.3	0.3	2.4	2.0	2.2
Total participating laboratories = 25																		
Xa (Median)	-	6	-	4.3				6.2				14.9				2.4	2.0	2.2
u _{Xa}	-	-	-	0.037				0.051				0.141				-	-	-
σ _p	-	-	-	0.301				0.434				1.043				-	-	-
σ _p '	-	-	-	-				-				-				-	-	-
Range	-	2-7	-	3.9-4.6				5.6-6.6				13.8-16.0				2.0-2.7	1.9-2.2	2.0-2.6
n	-	-	-	25				25				25				25	25	25
Mean	-	-	-	4.3				6.2				15.0				2.4	2.1	2.2
S.D.	-	-	-	0.17				0.23				0.64				0.13	0.07	0.13
C.V.	-	-	-	4.0%				3.7%				4.3%				5.4%	3.3%	5.9%

Note:
 1. $D\% = [(X - X_a) / X_a] \times 100\%$; X = Your Results, X_a = Assigned value
 2. $u_{X_a} = \text{uncertainty of the assigned value. } u_{X_a} = 1.1 \times SD / n^{1/2}$
 3. SD for proficiency assessment (σ_p) = 7% x X_a; but while X_a < 2.9 U/gHb, $\sigma_p = 0.2$ U/gHb
 4. Adjusted SD for proficiency assessment (σ_p') = $(\sigma_p^2 + u_{X_a}^2)^{1/2}$. σ_p' is used for proficiency assessment when $u_{X_a} \geq 0.3\sigma_p$
 5. z score = D / σ_p ; D = X - X_a, σ_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_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 : $|z| \leq 2$; 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, F20, F21, F22, F24, F26, F27, F28, F29, F30, F31, F32, F34

Long Term Observation of Blood G6PD Quantitative Test EQA Survey Results

Survey No : RH2020-04 (in green ●)

- Total participants' CV result plotted against surveys

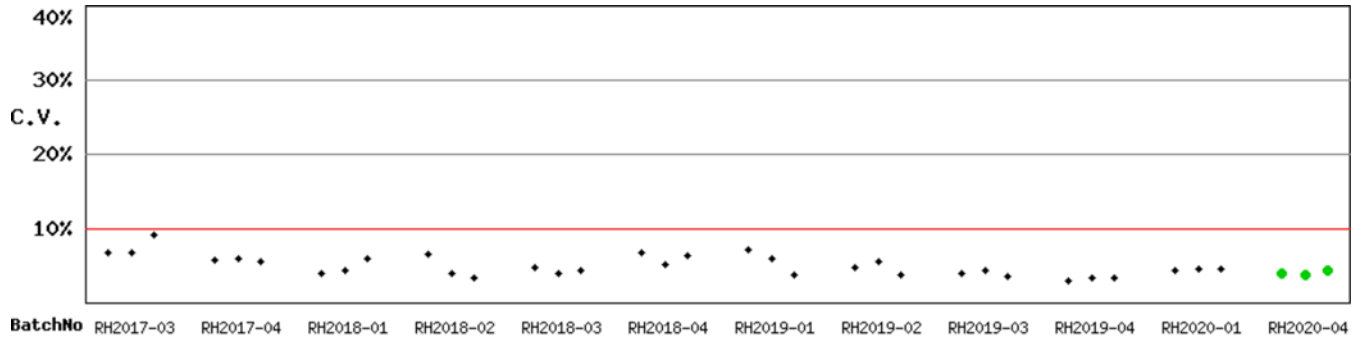


Fig RH-2.1

- Total participants' CV result plotted against G6PD activities

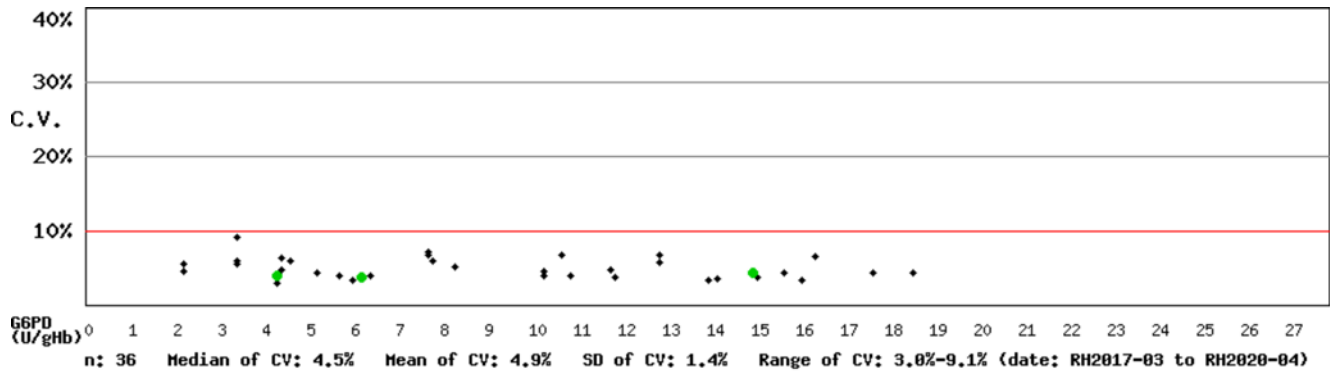


Fig RH-2.2

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

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(Report generated at 2020-11-20 16:59:18)

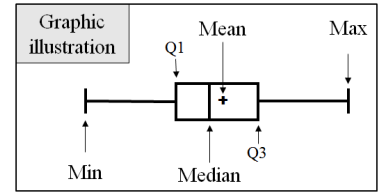
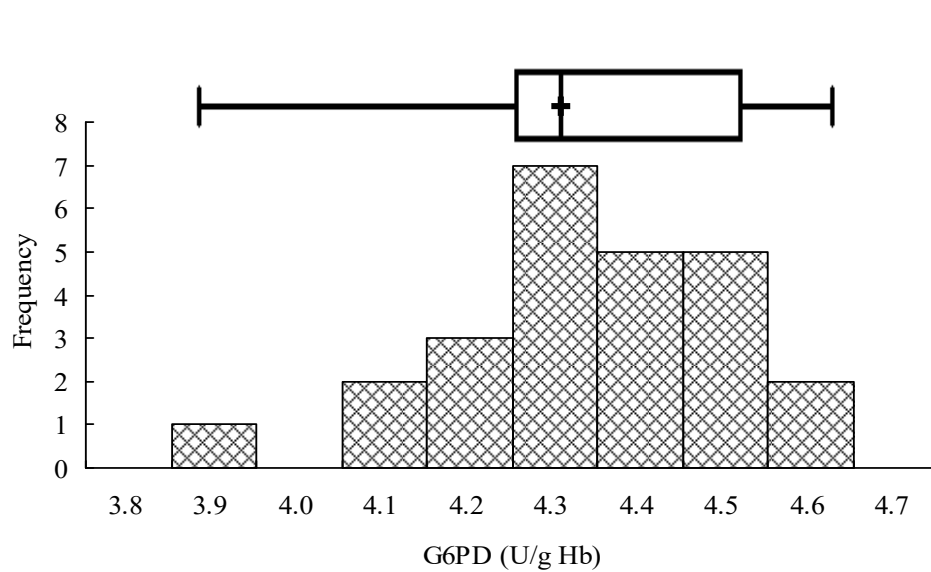
RH2020-04 Distribution of G6PD Test Results

Survey No. : RH2020-04

Sample sent on : 2020/11/10

Reporting deadline : 2020/11/17

Results reported (%) : 100%



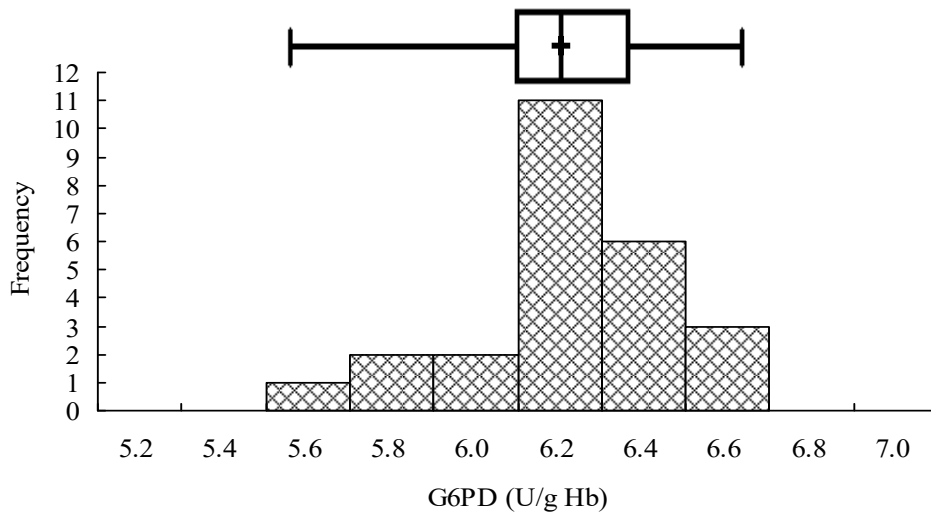
Sample 1

Median = 4.3 (n = 25)

Mean* = 4.3 (n = 25)

SD* = 0.17

CV = 4.0%



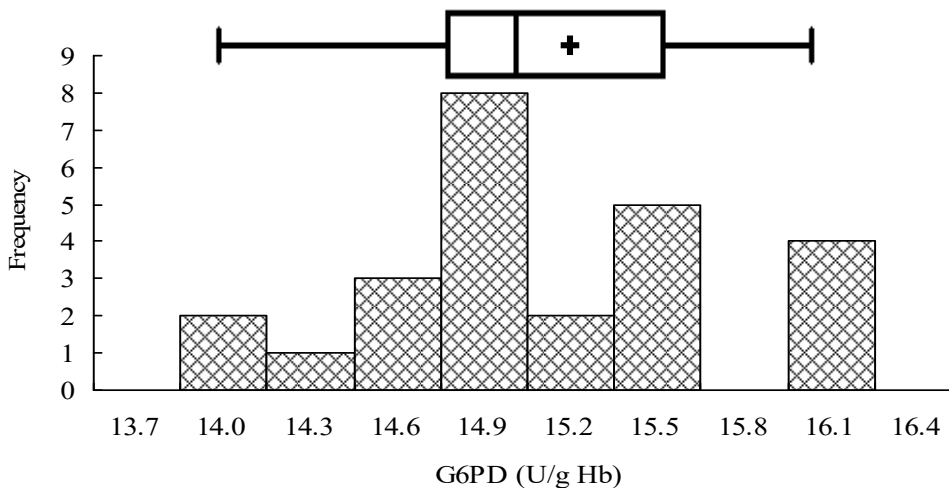
Sample 2

Median = 6.2 (n = 25)

Mean* = 6.2 (n = 25)

SD* = 0.23

CV = 3.7%



Sample 3

Median = 14.9 (n = 25)

Mean* = 15.0 (n = 25)

SD* = 0.64

CV = 4.3%

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

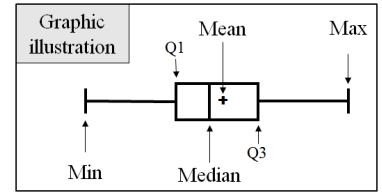
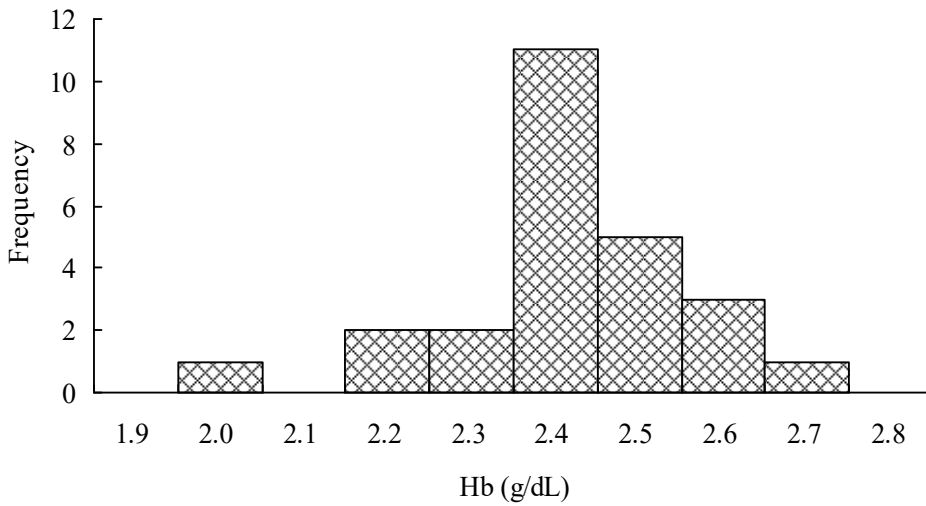
RH2020-04 Distribution of Hb Test Results

Survey No. : RH2020-04

Sample sent on : 2020/11/10

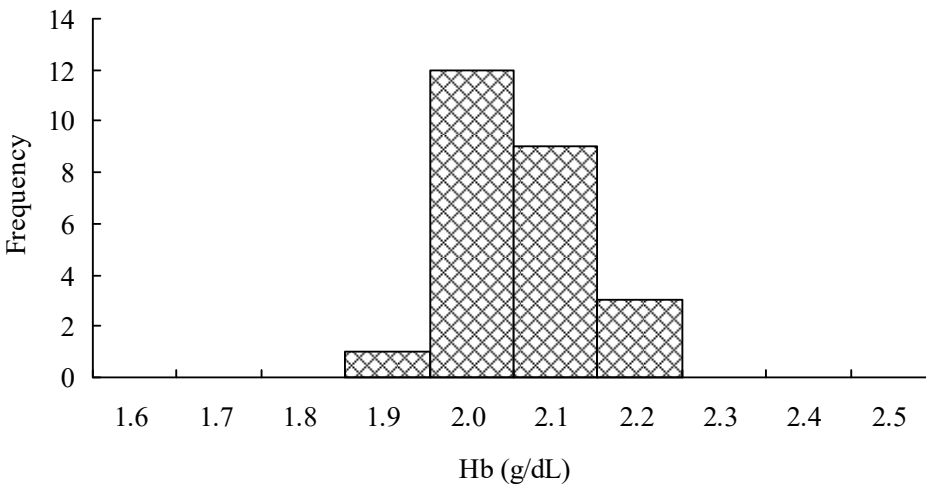
Reporting deadline : 2020/11/17

Results reported (%) : 100%



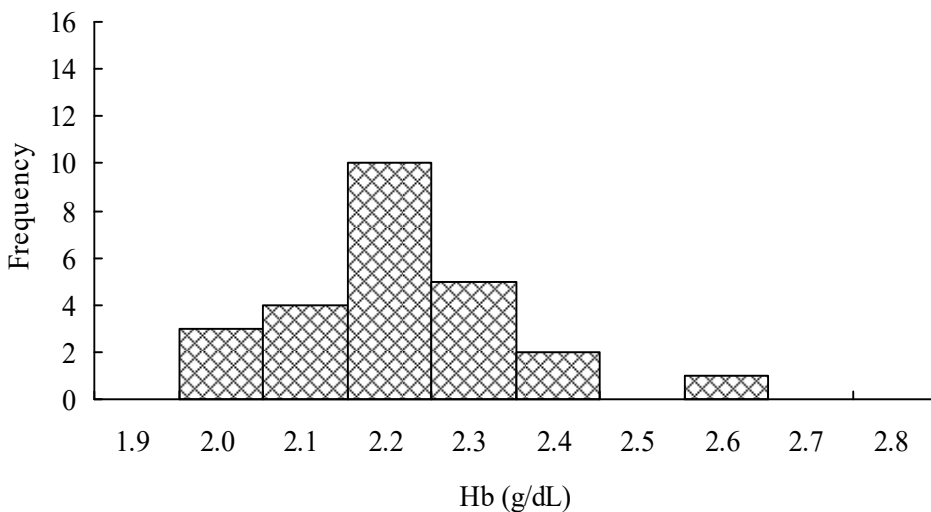
Sample 1

Median = 2.4 (n = 25)
Mean* = 2.4 (n = 25)
SD* = 0.13
CV = 5.4%



Sample 2

Median = 2.0 (n = 25)
Mean* = 2.1 (n = 25)
SD* = 0.07
CV = 3.3%



Sample 3

Median = 2.2 (n = 25)
Mean* = 2.2 (n = 25)
SD* = 0.13
CV = 5.9%

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