

External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2014-04

Sample sent on : 2014/04/14

Reporting deadline : 2014/04/21

Sample sent : [15 set](#)

Results reported (%) : 15 (100%)

- | | |
|---|---|
| <p>1. Summary report on this EQA survey</p> <p>2. The distribution of G6PD reported in this survey</p> <p>3. The distribution of Hb reported in this survey</p> | <p>4. Long term observation of inter laboratory CV vs. surveys</p> <p>5. Long term observation of inter laboratory CV vs. G6PD activities</p> <p>6. Deviation graph for individual laboratory</p> |
|---|---|

Referral Hosp. G6PD and Hemoglobin(Hb) Quantitative Test Results

Lab	Referral Hosp.	Report (day)	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)
F01	F01	1	14.6	5.8%	0.8	0.4	7.2	4.3%	0.6	0.7	2.0	33.3%	2.5	1.0	2.2	2.6	1.8
F02	F02	7	14.0	1.4%	0.2	0.0	7.0	1.4%	0.2	0.3	2.0	33.3%	2.5	1.0	2.4	2.3	2.0
F03	F03	2	13.3	-3.6%	-0.5	-0.5	6.9	0.0%	0.0	0.2	3.8	153.3%	11.5	5.5	2.7	2.4	2.1
F04	F04	7	14.7	6.5%	0.9	0.5	7.2	4.3%	0.6	0.7	1.5	0.0%	0.0	-0.3	2.2	2.0	1.9
F05	F05	2	14.6	5.8%	0.8	0.4	6.9	0.0%	0.0	0.2	1.7	13.3%	1.0	0.3	2.2	2.2	1.9
F06	F06	3	15.5	12.3%	1.8	1.0	7.1	2.9%	0.4	0.5	1.2	-20.0%	-1.5	-1.0	2.2	2.1	1.9
F07	F07	7	12.5	-9.4%	-1.3	-1.0	6.6	-4.3%	-0.6	-0.3	2.8	86.7%	6.5	3.0	2.6	2.4	2.3
F08	F08	2	13.0	-5.8%	-0.8	-0.7	6.7	-2.9%	-0.4	-0.2	1.6	6.7%	0.5	0.0	2.8	1.9	1.8
F09	F09	7	12.2	-11.6%	-1.7	-1.2	5.5	-20.3%	-2.9	-2.2	1.1	-26.7%	-2.0	-1.3	2.3	2.2	1.9
F10	F10	1	13.6	-1.4%	-0.2	-0.3	6.8	-1.4%	-0.2	0.0	1.4	-6.7%	-0.5	-0.5	2.3	2.2	2.0
F11	F11	7	16.6	20.3%	2.9	1.7	7.6	10.1%	1.4	1.3	1.4	-6.7%	-0.5	-0.5	2.1	2.0	1.8
F12	F12	7	16.8	21.7%	3.1	1.9	7.7	11.6%	1.7	1.5	1.5	0.0%	0.0	-0.3	1.7	1.6	1.4
F13	F13	4	13.5	-2.2%	-0.3	-0.3	6.4	-7.2%	-1.0	-0.7	1.4	-6.7%	-0.5	-0.5	2.1	2.1	1.9
F14	F14	8	12.4	-10.1%	-1.4	-1.1	5.9	-14.5%	-2.1	-1.5	1.4	-6.7%	-0.5	-0.5	2.3	2.1	1.9
F15	F15	3	13.8	0.0%	0.0	-0.1	6.6	-4.3%	-0.6	-0.3	1.7	13.3%	1.0	0.3	2.3	2.2	2.0
Total participating laboratories = 15																	
Xa (Median)	-	4	13.8				6.9				1.5				2.3	2.2	1.9
σ_p	-	-	0.966				0.483				0.2				-	-	-
Range	-	1-8	12.2-16.8				5.5-7.7				1.1-3.8				1.7-2.8	1.6-2.6	1.4-2.3
n	-	-	15				15				15				15	15	15
Mean	-	-	14.0				6.8				1.6				2.3	2.2	1.9
S.D.	-	-	1.5				0.6				0.4				0.2	0.2	0.1
C.V.	-	-	10.7%				8.8%				25.0%				8.7%	9.1%	5.3%

Note:

1. $D\% = [(X - X_a) / X_a] \times 100\%$; X = Your Results , X_a = Assigned value
2. $z \text{ score} = D / \sigma_p$; D = X - X_a, σ_p = SD for proficiency assessment
3. $SDI = (X - \text{Mean}) / SD$; SD = standard deviation of peer group
4. The assigned value (X_a) is the **median** of all the results reported of this EQA sample
5. SD for proficiency assessment (σ_p) = 7% x X_a ; but while X_a < 2.9 U/gHb, σ_p = 0.2
6. Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528:2005
7. Acceptable : $|z| \leq 2$; Caution : $2 < |z| \leq 3$; Unsatisfactory : $|z| > 3$
8. Maximum Allowable Deviation (MAD) = $3 \times (\sigma_p / X_a) \times 100\%$

[Ordered by Referral Hosp.](#)



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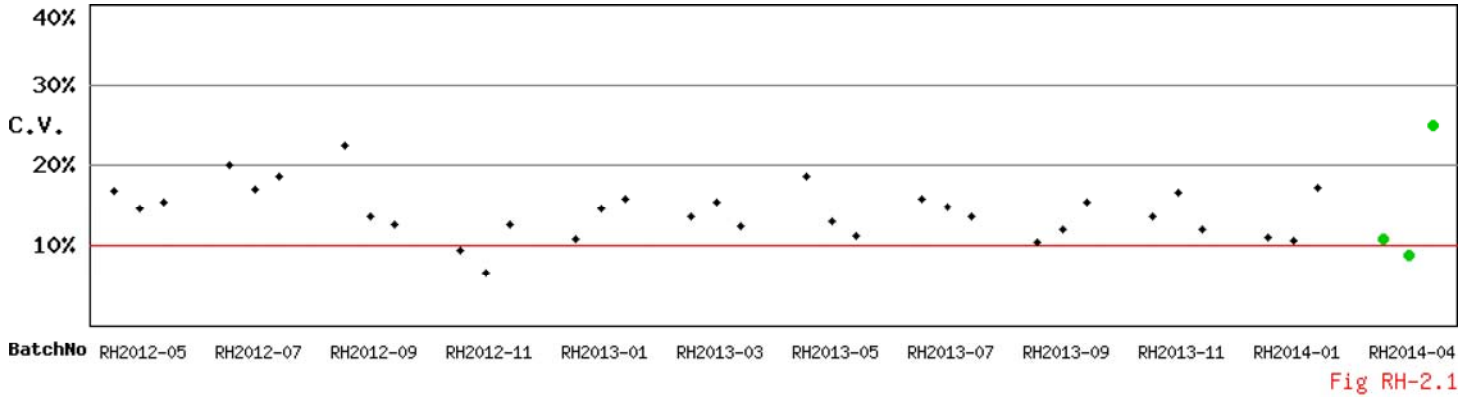
625 Pedro Gil St., Ermita, Manila 1000, Philippines

Fax : + 632-522-4396; info@nsrc-nih.org.ph

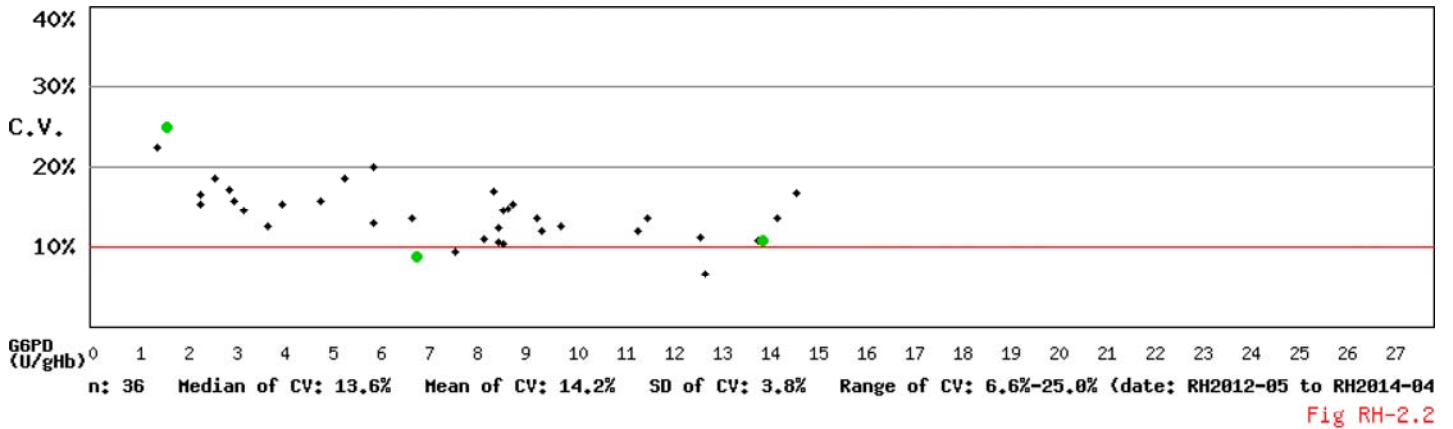
Long Term Observation of Blood G6PD Quantitative Test QA Survey Results

Survey No : RH2014-04 (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 13528:2005 since 2014

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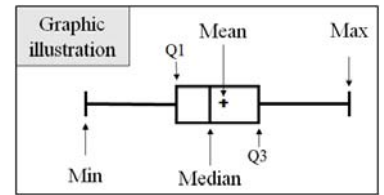
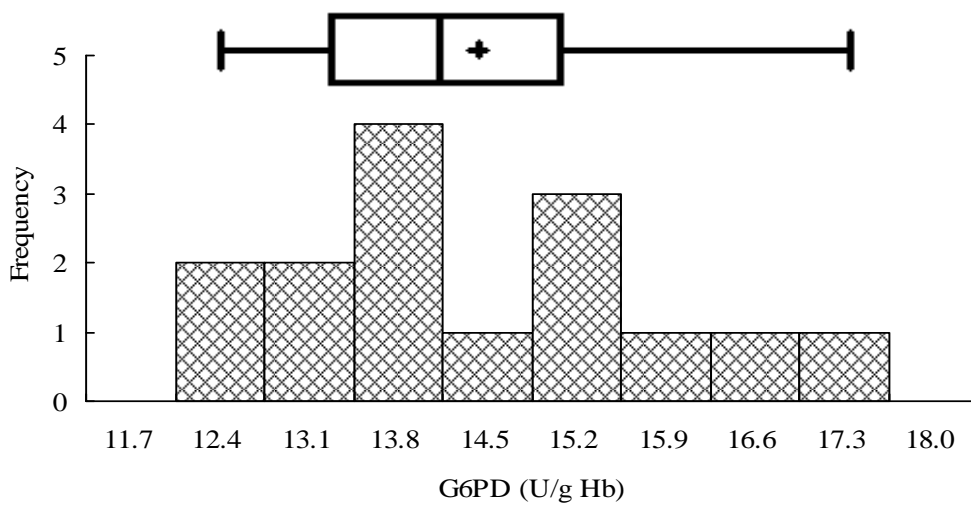
RH2014-04 External Quality Assurance -G6PD

Survey No. : RH2014-04

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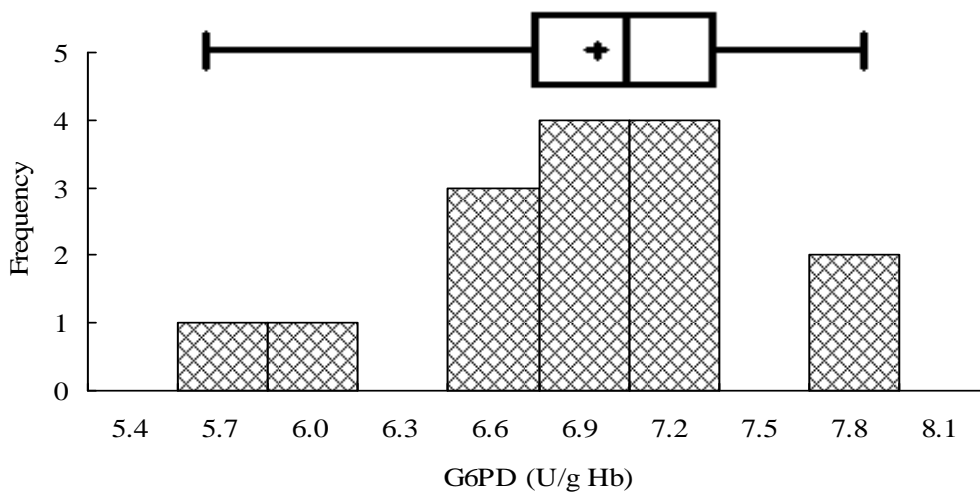


Sample 1

Median = 13.8 (n = 15)

Mean* = 14.0 (n = 15)

SD* = 1.5

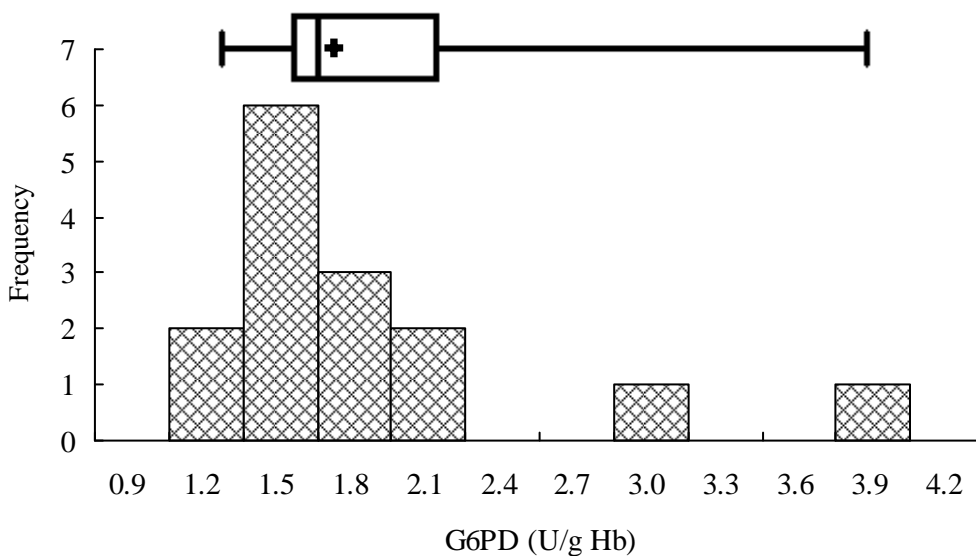


Sample 2

Median = 6.9 (n = 15)

Mean* = 6.8 (n = 15)

SD* = 0.6



Sample 3

Median = 1.5 (n = 15)

Mean* = 1.6 (n = 15)

SD* = 0.4

*Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528:2005

Fig PHIQ-3

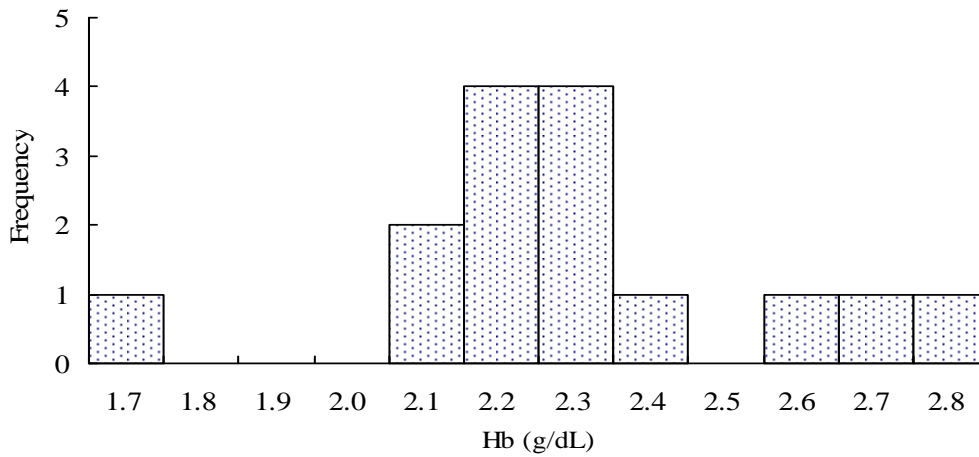
RH2014-04 External Quality Assurance -Hb

Survey No. : RH2014-04

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Results reported (%) : 100%

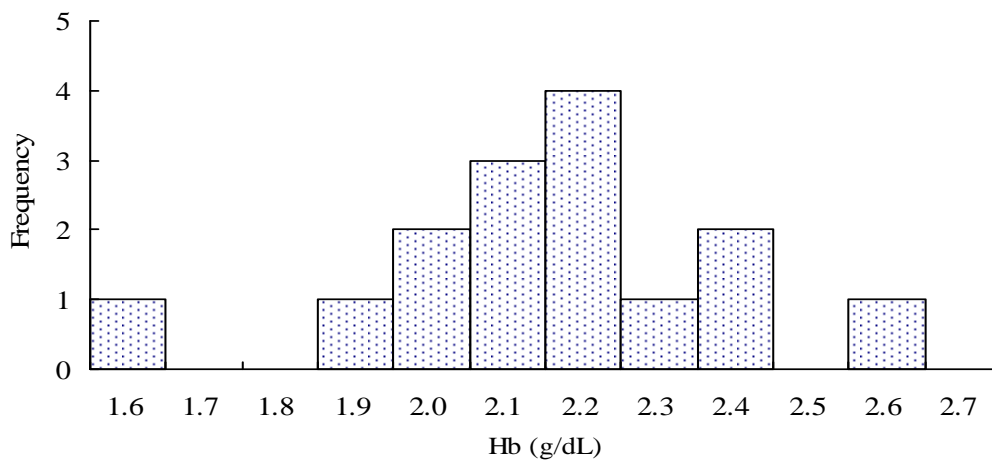


Sample 1

Median = 2.3 (n = 15)

Mean* = 2.3 (n = 15)

SD* = 0.2

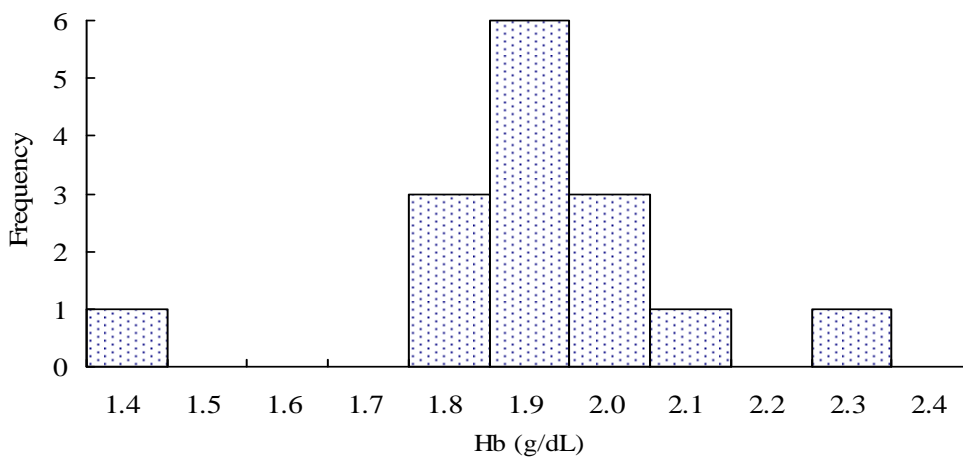


Sample 2

Median = 2.2 (n = 15)

Mean* = 2.2 (n = 15)

SD* = 0.2



Sample 3

Median = 1.9 (n = 15)

Mean* = 1.9 (n = 15)

SD* = 0.1

*Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528:2005

Fig PHIQ-4

External Quality Assurance (EQA) Program

for

G6PD Quantitative Test in Philippines

Survey No. : RH2014-04 Sample sent on : 2014 / 04 / 14

Reporting deadline : 2014 / 04 / 21

This Survey [S2](#) has been used in 2009-2014 (n = 7 ; Survey / Sample No.) :

[RH2009-11/S1](#) ; [RH2010-01/S2](#) ; [RH2011-03/S1](#) ; [RH2011-07/S1](#) ; [RH2012-09/S2](#) ; [RH2013-05/S2](#) ; [RH2014-04/S2](#);

Intermediate Measurement Precision of G6PD Quantitative Test

Lab	Survey : RH2014-04 / Sample 2		Program period: 2009 ~ 2014²			
	U/gHb	SDI ¹	Mean	n	SD	CV
F01	7.2	0.6	6.5	6 ³	1.2	18.5%
F02	7.0	-0.6	7.3	7	0.5	6.8%
F03	6.9	-0.5	8.2	7	2.5	30.5%
F04	7.2	0.2	7.1	6 ⁴	0.5	7.0%
F05	6.9	-0.7	7.7	7	1.2	15.6%
F06	7.1	-0.4	7.4	6 ⁵	0.8	10.8%
F07	6.6	-0.4	7.2	7	1.5	20.8%
F08	6.7	-0.2	6.9	7	0.9	13.0%
F09	5.5	-0.3	6.5	6 ⁴	2.9	44.6%
F10	6.8	1.1	5.8	7	0.9	15.5%
F11	7.6	0.6	6.9	3	1.2	17.4%
F12	7.7	1.0	6.4	3	1.3	20.3%
F13	6.4	0.7	6.0	2	0.6	10.0%
F14	5.9	—	—	1	—	—
F15	6.6	—	—	1	—	—
Total participating laboratories = 15						
Median	6.9	-0.2	6.9	—	1.2	15.6%
Range	5.5 ~ 7.7	-0.7 ~ 1.1	5.8 ~ 8.2	—	0.5 ~ 2.9	6.8% ~ 44.6%

1). Standard Deviation Index (SDI) = (Individual Result - Individual Mean) / Individual SD

2). Survey / Sample No. : [RH2009-11/S1](#) ; [RH2010-01/S2](#) ; [RH2011-03/S1](#) ; [RH2011-07/S1](#) ; [RH2012-09/S2](#) ; [RH2013-05/S2](#) ; [RH2014-04/S2](#);

3). Not participated in the [RH2009-11](#) survey.

4). Results not reported for the [RH2011-03](#) survey.

5). Results not reported for the [RH2010-01](#) survey.

*. Intermediate Measurement Precision ; ISO 3534-2:2006.

** . Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528:2005

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