

Evaluation of Food Composition Data for User databases

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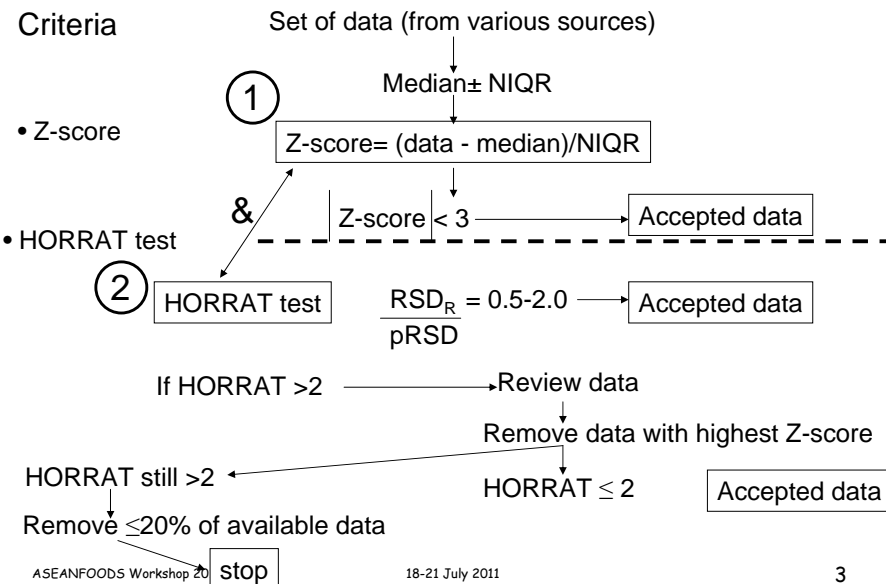
Data compilation

Archival file → Reference data file → User data file

Aggregated data $\xrightarrow{?}$ one user data

How to generate user data file from a set of aggregated data?

Criteria of acceptance



Robust statistics : z-scores

$$\text{z-score} = \frac{X - \text{median}}{\text{normalised IQR}}$$

accepted value : [z-score] < 3

- median
- quartile 3 (Q₃)
- quartile 1 (Q₁)
- interquartile range (IQR) = Q₃ - Q₁
- normalised IQR = IQR × 0.7413

HORRAT test = $RSD_R/pRSD$

For interlaboratory studies: Acceptable HORRAT = $(RSD_R/pRSD) < 1$
(lower limit = 0.5, upper limit =2)

RSD or %CV = $(SD \times 100)/Mean$

Horwitz pRSD = $2^{(1-0.5\log C)}$

Where "C" is expressed as a mass fraction concentration
(i.e. average Vit. B1 = 0.24 mg/100g)

$C = \frac{0.24}{100 \times 1000} = 0.0000024$

foodname in English	scientific	qualit match	source	fdnuml	WATER(g)	XN	NT(g)	PROTCN T(g)	PF (g)
Egg, hen, whole egg, boiling (5 min)			thesis		74.7				
Egg, hen, boiled A			inmu		73.6			13.6	
Egg, hen, boiled B			inmu		73.1			*14.91	
Egg, hen, boiled C			inmu		75.7			13.2	
Egg, hen, boiled (CP)			inmu		76.0			13.8	
Egg, hen, boiled (Dindang Market)			inmu		77.3			12.5	
Egg, hen, boiled (Nakhonpathom Market)			inmu		76.6			12.6	
Median =					75.72			13.16	
Quartile 3					76.30			13.63	
Quartile 1					74.11			12.61	
IQR =					2.19			1.02	
nor IQR =					1.63			0.75	
Z-score Si 1					-0.7			-17.5	
Si 2					-1.3			0.6	
Si 3					-1.6			#VALUE!	
Si 4					0.0			0.0	
Si 5					0.2			0.9	
Si 6					1.0			-0.9	
Si 7					0.5			-0.7	
Egg, hen, boiled mean=			User databases		75.3			13.1	
Egg, hen, boiled SD=					1.57			0.60	
Egg, hen, boiled N=					7			5	
Egg, hen, boiled RSD _R					2.081186			4.52755	
(%CV)=									
Egg, hen, boiled HORRAT =					0.997059			1.66807	
RSD _R / RSD _p (0.5-2.0)								2.4601	

Horwitz pRSD = $2^{(1-0.5\log 0.753)} = 2.1$

Z-score= data-median/NIQR

[Z-score] ≤ 3

RSD_R/pRSD

2

foodname in English	scientific	qualit match	source	fdnuml	WATER(g)	XN	NT(g)	PROTCN T(g)	PF (g)
Egg, hen, whole egg, boiling (5 min)			thesis		74.7				
Egg, hen, boiled A			inmu		73.6			13.6	
Egg, hen, boiled B			inmu		73.1			*14.91	
Egg, hen, boiled C			inmu		75.7			13.2	
Egg, hen, boiled (CP)			inmu		76.0			13.8	
Egg, hen, boiled (Dindang Market)			inmu		77.3			12.5	
Egg, hen, boiled (Nakhonpathom Market)			inmu		76.6			12.6	
Median =					75.72			13.4	13.16
Quartile 3					76.30			13.79	13.63
Quartile 1					74.11			12.75	12.61
IQR =					2.19			1.04	1.02
nor IQR =					1.63			0.77	0.75
Z-score Si 1					-0.7			-17.4	-17.5
Si 2					-1.3			0.3	0.6
Si 3					-1.6			2.0	#VALUE!
Si 4					0.0			0.3	0.0
Si 5					0.2			0.6	0.9
Si 6					1.0			-1.2	-0.9
Si 7					0.5			-1	-0.7
Egg, hen, boiled mean=					75.3			13.4	13.1
Egg, hen, boiled SD=					1.57			0.89	0.60
Egg, hen, boiled N=					7			6	5
Egg, hen, boiled RSD _R					2.081186			6.66	4.52755
(%CV)=									
Egg, hen, boiled HORRAT =					0.997059			2.46	1.66807
RSD _R / RSD _p (0.5-2.0)									

THANK YOU

