



MNHA SEMINAR 2017

DR. HJ. MOHAMAD KAIRUL ANEEZA BIN ZAKARIA

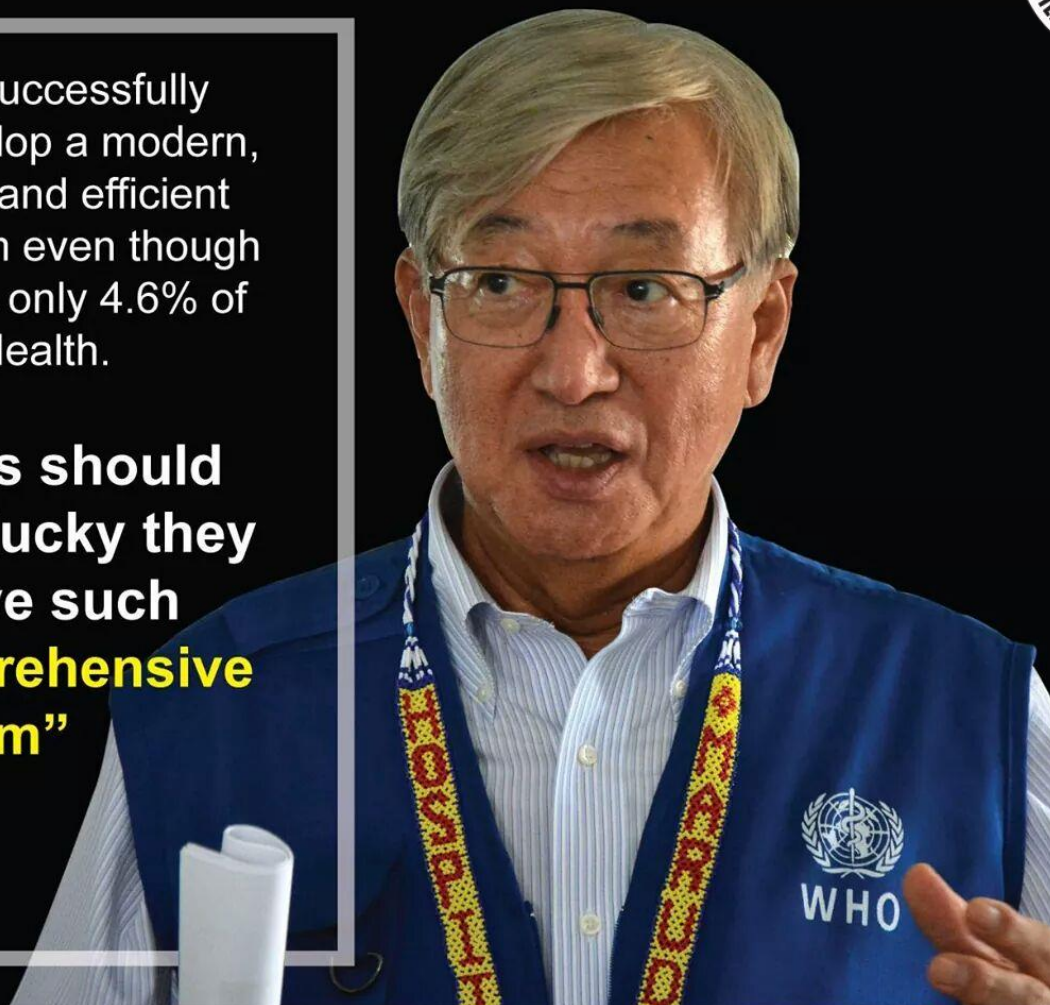
PRODUCING NHA ESTIMATION

**HOTEL BANGI-PUTRAJAYA
14 MARCH 2017**

Malaysia has successfully managed to develop a modern, comprehensive and efficient healthcare system even though Malaysia spends only 4.6% of GDP on Health.

“Malaysians should realise how lucky they are to have such a **very comprehensive system”**

Dr Shin Young-soo,
WHO Regional Director for
Western Pacific Region



CONTENT





DATA



1. DATA SOURCE



PUBLIC SECTOR			
	Main Agencies	Specific Organization	Source of Data
1	Ministry of Health	Accountant-General's Department	MOH - AG DATA (expenditure)
2	Other Ministries	Ministry of Higher Education	MNHA survey - MOHE
		Ministry of Defence	MNHA survey - MOD
3	Other Federal Agencies	National Population and Family Development Board	MNHA survey - LPPKN
		Department of Orang Asli Development	MNHA survey - JAKOA
		Public Service Department-Pension	MNHA survey - JPA
		Civil Defence Department	MNHA survey - JPAM
		Prison Department of Malaysia	MNHA survey - PENJARA
		Social Welfare Department	MNHA survey - JKM
		Occupational Safety And Health Department	MNHA survey - DOSH
		National Institute of Occupational Safety & Health Malaysia	MNHA survey - NIOSH
		National Anti-Drug Agency	MNHA survey - AADK
		Pilgrims Fund Board	MNHA survey - LTH
		National Heart Institute	MNHA survey - IJN
		Federal Statutory Bodies	MNHA survey - BERKANUN (Fed)
		Public Water Supply Department (Federal)	MNHA survey - JBA (OFA)
		National Sports Institute of Malaysia	MNHA survey - ISN
		Employee Provident Fund - HQ	MNHA survey - KWSP (0001)
		Employee Provident Fund - state	MNHA survey - KWSP (0002)
		Social Security Organization - HQ	MNHA survey - PERKESO (0001)
		Social Security Organization - state	MNHA survey - PERKESO (0002)
		Ministry of Science Technology and Innovation	MNHA survey - MOSTI
		Public Higher Education Institutions	MNHA survey - TRAINING (OFA-Pu)
		Private Higher Education Institutions	MNHA survey - TRAINING (OFA-Pr)
4	State Agencies	State Government (General)	MNHA survey - KN
		Public Water Supply Department (State)	MNHA survey - JBA (state)
		State Statutory Body (SSB)	MNHA survey - BERKANUN (state)
		Public Water Supply Department (State Statutory Body)	MNHA survey - JBA (SSB)
		State Islamic Religious Council / Zakat Collection Centre	MNHA survey - MAIN
5	Local Authorities	Local Authority - Health care Services	MNHA survey - PBT (Perkhid)
		Local Authority - Staff	MNHA survey - PBT (Ktgn)

1. DATA SOURCE



PRIVATE SECTOR			
	Main Agencies	Specific Organization	Source of Data
1	Private Insurance	Central Bank of Malaysia	MNHA survey - BNM
		Insurance Agencies	MNHA survey - INSURAN
2	Managed Care Organization	MCO Agencies	MNHA Survey - MCO
3	Out of Pocket (Gross Spending)	MOH user charges	MOH - AG DATA (Revenue)
		IJN user charges	MNHA Survey - IJN
		MOE user charges	MNHA Survey - KPT
		Private Hospital (MNHA)	MNHA Survey - PRIVATE HOSPITAL
		Private Hospital (DOSM)	DOSM Survey - PRIVATE HOSPITAL
		Private Clinic Medical, DOSM	DOSM Survey - PRIVATE MEDICAL CLINIC
		Private Clinic Dental, DOSM	DOSM Survey - PRIVATE DENTAL CLINIC
		Private Haemodialysis Centre (MNHA)	MNHA Survey - PRIVATE HEMO (0001)
		Pharmacy Division, MOH	MNHA Survey - FARMASI (0001)
		IMS	MNHA Survey - FARMASI (0002)
		Medical supplies HES, DOSM	DOSM Survey - HES DATA
		Medical durables / prostheses / equipments HES, DOSM	DOSM Survey - HES DATA
		Ancillary services HES, DOSM	DOSM Survey - HES DATA
		Private TCM HES, DOSM	DOSM Survey - HES DATA
		Public Higher Education Institutions	MNHA survey - TRAINING (OOP-Pu)
		Private Higher Education Institutions	MNHA survey - TRAINING (OOP-Pr)
	Out-of Pocket (Third Party Deductions)	Insurance Agencies	MNHA Survey - INSURAN
		Central Bank of Malaysia	MNHA survey - BNM
		Private Corporations	MNHA Survey - PRIVATE CORPORATION
		Employees Provident Fund	MNHA Survey - KWSP
		Social Security Organization	MNHA Survey - PERKESO
		Federal Statutory Bodies	MNHA Survey - BERKANUN (Fed)
		State Statutory Body	MNHA Survey - BERKANUN (state)
		FOMEMA/UNITAB MEDIC - OOP data	MNHA Survey - UNITABMEDIC
		GROWARISAN - OOP data	MNHA Survey - GROWARISAN

1. DATA SOURCE



PRIVATE SECTOR			
	Main Agencies	Specific Organization	Source of Data
4	Non-Government Organization	Non-Governmental Organizations	MNHA survey - NGO
5	Corporations	Limited and Private Limited Corporations	MNHA Survey - PRIVATE CORPORATION
		Corps - Labour Force Survey	DOSM Survey - CORPS_DOS (0002)
		Industrial Survey & Manufacturing, DOSM	DOSM Survey - CORPS_DOS (0001-non med)
		Private Hospital staff, DOSM	DOSM Survey - CORPS_DOS (0001-hosp)
		Private Clinic Medical, DOSM	DOSM Survey - CORPS_DOS (0001-clinic)
		Private Clinic Dental, DOSM	DOSM Survey - CORPS_DOS (0001-dental)
		Private Water Supply Department	MNHA survey - JBA (corp)
		FOMEMA/UNITAB MEDIC	MNHA Survey - UNITABMEDIC
		GROWARISAN	MNHA Survey - GROWARISAN
		Public Higher Education Institutions	MNHA survey - TRAINING (Corp-Pu)
		Private Higher Education Institutions	MNHA survey - TRAINING (Corp-Pr)
6	Rest of the world	International Organizations in Malaysia	MNHA survey - Rest
7	Other National Surveys	DOSM-Population survey	General-DOS General_DOS (0001)
		DOSM-GDP & GDP Deflator	General-DOS General_DOS (0002)
		DOSM-Household Consumption	General-DOS General_DOS (0003)

1. DATA SOURCE



11 GROUPS OF MOH FACILITIES

No	Group of Facilities
1	Headquarters
2	State Health Offices
3	Vector Disease Control by State
4	PH Laboratories
5	Hospitals
6	District Health Offices
7	District Dental Offices
8	Research Institutions
9	Nursing & Allied Health Colleges by State
10	PJ Pharmacy Division
11	National Blood Bank (NBB)

1. DATA SOURCE



Local Authorities **(154):**

- | | |
|--|------|
| 1. City Hall(Dewan Bandaraya) | - 3 |
| 2. City Council (Majlis Bandaraya) | - 9 |
| 3. Municipal Council (Majlis Perbandaran) | - 39 |
| 4. District Council (Majlis Daerah) | - 98 |
| 5. Agency Authorized LA (Agensi yang diberi kuasa PBT) | - 5 |



2. DATA COLLECTION



Multiple formats of data collection :

- 1) MNHA surveys
- 2) MOH surveys
- 3) MNHA questionnaire (Q) formats
- 4) AG database
- 5) DOS surveys
- 6) Private sector database (eg: IMS database)
- 7) Reports,etc.

2. DATA COLLECTION



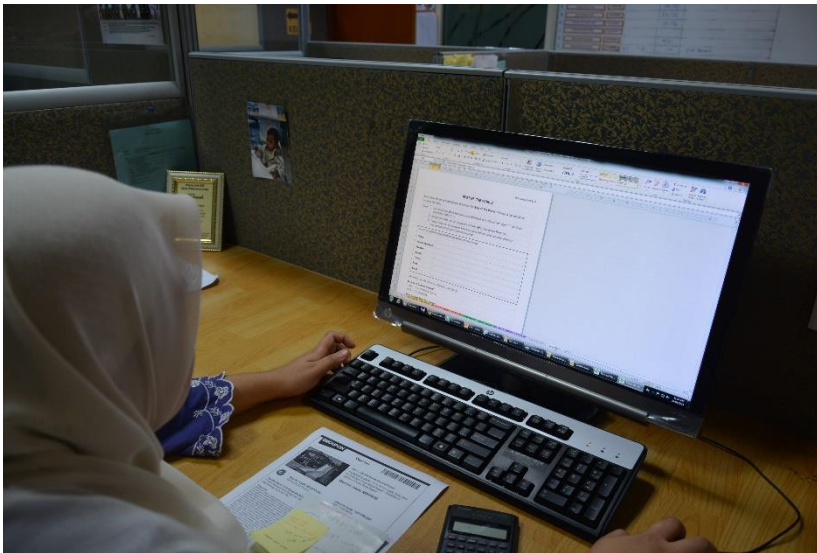
- Primary data is preferred as compared to secondary data
- Formal letter : request for data



2. DATA COLLECTION



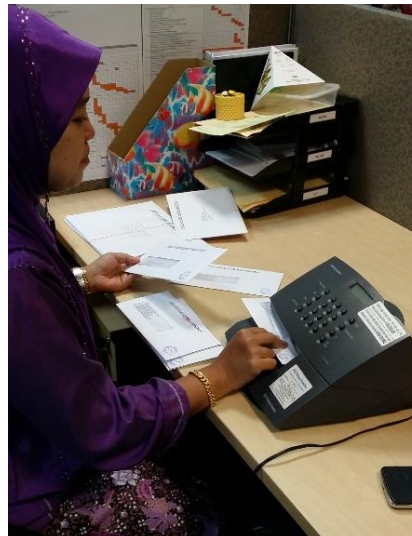
- Questionnaire and surveys :
 - ✓ Fill up previous year data for verification by agency



2. DATA COLLECTION



- Questionnaire and surveys :
 - ✓ Printed version questionnaire which are dynamic and custom made by agencies
 - ✓ Sent it by mail
 - ✓ Reminder : once / twice
 - ✓ Received back the questionnaire : partially filled / empty
 - ✓ No response



2. DATA COLLECTION



- By email
- By phone / peer : clarification
- Discussion / meeting
- Administered investigators field survey



3. DATA ANALYSIS



- ❑ Dummy tables for data entry (raw data) & analysis
- ❑ Analysis – standard recommended methods under NHA techniques
eg: Filling data gap (missing data) using interpolation & extrapolation

3. DATA ANALYSIS



- Analysis – linking various worksheets and work-file within each agency

FSB 2013 V13 [Compatibility Mode] - Microsoft Excel

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K2 =SUMIFS(FINAL_NEW!\$J\$105:\$J\$157,FINAL_NEW!\$D\$105:\$D\$157,Database_new!G2,FINAL_NEW!\$F\$105:\$F\$157,Database_new!H2)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	item	MID	MNHA_MS	MNHA_MP	MNHA_MF	MS	MP	MF	Year	State	Expenditure	x	MS_Label	MNHA_MP
2	1	1119090000	MS1.1.1.9	MP1.1a	MF1.1	1119	1101	1100	1997	18	347,684.69	1	Other federal agencies (including statutory bodies)	Ho:
3	2	1119090000	MS1.1.1.9	MP1.1a	MF1.3.1	1119	1101	1310	1997	18	240,767.02	1	Other federal agencies (including statutory bodies)	Ho:
4	3	1119090000	MS1.1.1.9	MP1.1a	MF1.2	1119	1101	1200	1997	18	2,822.58	1	Other federal agencies (including statutory bodies)	Ho:
5	4	1119090000	MS1.1.1.9	MP1.1.2b	MF1.1	1119	1109	1100	1997	18	107,846.33	1	Other federal agencies (including statutory bodies)	Ho:
6	5	1119090000	MS1.1.1.9	MP1.1.2b	MF1.3.3	1119	1109	1330	1997	18	169,493.80	1	Other federal agencies (including statutory bodies)	Ho:
7	6	1119090000	MS1.1.1.9	MP1.1.2b	MF1.2	1119	1109	1200	1997	18	-	0	Other federal agencies (including statutory bodies)	Ho:
8	7	1119090000	MS1.1.1.9	MP1.1.1b	MF1.1	1119	1108	1100	1997	18	316,260.64	1	Other federal agencies (including statutory bodies)	Ho:
9	8	1119090000	MS1.1.1.9	MP1.1.1b	MF1.3.3	1119	1108	1330	1997	18	-	0	Other federal agencies (including statutory bodies)	Ho:
10	9	1119090000	MS1.1.1.9	MP1.1.1b	MF1.2	1119	1108	1200	1997	18	-	0	Other federal agencies (including statutory bodies)	Ho:
11	10	1119090000	MS1.1.1.9	MP1.3.1b	MF1.1	1119	1304	1100	1997	18	626,531.12	1	Other federal agencies (including statutory bodies)	Spe
12	11	1119090000	MS1.1.1.9	MP1.3.1b	MF1.2	1119	1304	1200	1997	18	648,297.50	1	Other federal agencies (including statutory bodies)	Spe
13	12	1119090000	MS1.1.1.9	MP1.3.1b	MF1.3.3	1119	1304	1330	1997	18	-	0	Other federal agencies (including statutory bodies)	Spe
14	13	1119090000	MS1.1.1.9	MP1.1c	MF1.1	1119	1110	1100	1997	18	5,677,970.59	1	Other federal agencies (including statutory bodies)	Ho:
15	14	1119090000	MS1.1.1.9	MP1.1c	MF1.3.3	1119	1110	1330	1997	18	4,597,169.63	1	Other federal agencies (including statutory bodies)	Ho:
16	15	1119090000	MS1.1.1.9	MP1.1c	MF1.2	1119	1110	1200	1997	18	197,572.86	1	Other federal agencies (including statutory bodies)	Ho:
17	16	1119090000	MS1.1.1.9	MP3.1a	MF1.3.1	1119	3101	1310	1997	18	51,495.82	1	Other federal agencies (including statutory bodies)	Me
18	17	1119090000	MS1.1.1.9	MP3.1.1b	MF1.3.1	1119	3103	1310	1997	18	-	0	Other federal agencies (including statutory bodies)	Me
19	18	1119090000	MS1.1.1.9	MP3.1.2b	MF1.3.1	1119	3104	1310	1997	18	-	0	Other federal agencies (including statutory bodies)	Me
20	19	1119090000	MS1.1.1.9	MP3.1c	MF1.3.1	1119	3105	1310	1997	18	14,644,550.93	1	Other federal agencies (including statutory bodies)	Me
21	20	1119090000	MS1.1.1.9	MP3.1c	MF1.2	1119	3105	1200	1997	18	254,674.56	1	Other federal agencies (including statutory bodies)	Me
22	21	1119090000	MS1.1.1.9	MP3.2a	MF1.3.2	1119	3201	1320	1997	18	117.30	1	Other federal agencies (including statutory bodies)	Dei
23	22	1119090000	MS1.1.1.9	MP3.2.2b	MF1.3.2	1119	3204	1320	1997	18	-	0	Other federal agencies (including statutory bodies)	Dei

Content Checklist Bil Kakitangan Badan Berkanun GRAND TOTAL (GT) Dummy FINAL_NEW Database_new 10D MSC MPC MFC IDI

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3. DATA ANALYSIS



- ❑ Time Series – data comparability
- ❑ Verification all coded data (eg: Discussions)
- ❑ Multiple types of formula: if, sumif, vlookup, transpose, pivot table



3. DATA ANALYSIS



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B13 =SUMIFS(Dummy!F\$7:F\$1540,Dummy!\$C\$7:\$C\$1540,\$A13,Dummy!\$BU\$7:\$BU\$1540,"Lengkap")

	A	B	C	D	E	F	G	H	I	X	Y	Z	AA	AB
		1			2			3		12	13		14	
		Hospital KKM			Hospital Bukan KKM non-corporatised			Hospital Bukan KKM cor		Dental Swasta	Nursing Care Facilities public		Nursing Care Facilities private	
		MP1.1a			MP1.1.2b			MP1.1.1b		MP3.2c	MP2.1.2b		MP2.1c	
	Year	MF1.1	MF1.3.1	MF1.2	MF1.1	MF1.3.3	MF1.2	MF1.1	MF1.3.3	MF1.3.2	MF3.1	MF3.3	MF3.1	MF3.3
1997														
1998														
1999														
2000														
2001														
2002														
2003		429,806	297,635	3,489	133,319	209,527	0	390,959	0	1,038,035	0	0	0	0
2004		586,729	483,424	4,041	204,249	245,330	0	534,544	0	1,375,157	0	0	0	0
2005		432,442	529,305	3,912	468,571	279,469	0	394,765	0	1,769,142	0	0	0	0
2006		779,240	512,820	5,215	390,274	278,098	0	348,578	0	1,837,008	0	0	0	0
2007		215,242	781,296	0	129,088	678,048	146	0	19,556	1,627,140	0	0	0	0
2008		172,110	1,325,030	62,910	73,388	13,089	565	80,003	27,521	1,573,967	833	0	94,266	16,907
2009		81,281	63,610	496	44,201	142,844	488	27,582	5,775	1,858,593	40	0	22,642	0
2010		1,016,913	559,841	7,805	127,837	42,426	0	2,774,624	878,056	6,087,828	0	0	0	0
2011		1,362,330	978,765	6,935	115,550	108,236	0	4,054,645	55,806	6,484,876	0	0	0	0
2012		891,375	978,190	105,768	86,923	26,436	0	12,434,047	1,535,423	6,901,827	0	0	0	0
		0.59%	0.70%	0.01%	0.24%	0.31%	0.00%	1.01%	0.10%	2.55%	0.00%	0.00%	0.01%	0.00%

Content Checklist Bil Kakitangan Badan Berkanun GRAND TOTAL (GT) Dummy FINAL_NEW Database_new 10D MSC MPC MFC ID

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3. DATA ANALYSIS



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H2 =IF(D2=" ", " ", VLOOKUP(D2, MSC!\$A\$2:\$F\$26, 6))

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	Year	State	Agency	mnha_source	mnha_provider	mnha_function	exp	icha_source	icha_provider	icha_function						
2	1997	18	1119090000	1119	1101	1100	347684.69	111	110	110						
3	1997	18	1119090000	1119	1101	1310	240767.02	111	110	131						
4	1997	18	1119090000	1119	1101	1200	2822.58	111	110	120						
5	1997	18	1119090000	1119	1109	1100	107846.33	111	110	110						
6	1997	18	1119090000	1119	1109	1330	169493.80	111	110	133						
7																
8	1997	18	1119090000	1119	1108	1100	316260.64	111	110	110						
9																
10																
11	1997	18	1119090000	1119	1304	1100	626531.12	111	130	110						
12	1997	18	1119090000	1119	1304	1200	648297.50	111	130	120						
13																
14	1997	18	1119090000	1119	1110	1100	5677970.59	111	110	110						
15	1997	18	1119090000	1119	1110	1330	4597169.63	111	110	133						
16	1997	18	1119090000	1119	1110	1200	197572.86	111	110	120						
17	1997	18	1119090000	1119	3101	1310	51495.82	111	310	131						
18																
19																
20	1997	18	1119090000	1119	3105	1310	14644550.93	111	310	131						
21	1997	18	1119090000	1119	3105	1200	254674.56	111	310	120						
22	1997	18	1119090000	1119	3201	1320	117.30	111	320	132						
23																

Content Checklist Bil Kakitangan Badan Berkanun GRAND TOTAL (GT) Dummy FINAL NEW Database_new 10D MSC MPC MFC ID

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3. DATA ANALYSIS



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PivotTable Tools
Options Design

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B13

	A	B	C	D	E	F	G	H	I	J	K
1	MNHA_MS	(All)									
2											
3	Sum of Expenditure	MNHA_MF									
4	MNHA_MP	MF1.1	MF1.2	MF1.3.1	MF1.3.2	MF1.3.3	MF3.1	MF3.3	MF4.1	MF4.2	MF4.3
5	MP1.1.1b	10,771,667.60	3,699.82			964,627.52					
6	MP1.1.2b	2,205,718.70	1,438.60			3,082,929.39					
7	MP1.1a	6,189,727.35	137,140.42	6,598,547.84							
8	MP1.1c	186,000,368.08	11,959,325.22			143,681,209.24					
9	MP1.3.1b	26,595,617.04	21,084,364.41			2,777,926.32					
10	MP2.1.2b						908.75				
11	MP2.1c						128,464.02	17,296.15			
12	MP3.1.1b			850.37							
13	MP3.1.2b			7,724,453.00							
14	MP3.1a			991,367.17							
15	MP3.1c		7,351,165.91	385,062,884.51							
16	MP3.2.2b				95,376.34						
17	MP3.2a				227,520.89						
18	MP3.2c				25,170,886.56						
19	MP3.5.4a		494,812.02								
20	MP3.5.4b		277,145.36								
21	MP3.5.4c		36,333,219.73								
22	MP3.6a							169,061.29	94,655.12		
23	MP3.6b							4,013,457.97	1,369,247.06		

PivotTable Field List

Choose fields to add to report:

- ☐ item
- ☐ MMD
- ☒ MNHA_MS
- ☒ MNHA_MP
- ☒ MNHA_MF
- ☐ MS
- ☐ MP
- ☐ MF
- ☐ Year
- ☐ State
- ☒ Expenditure

Drag fields between areas below:

Report Filter: MNHA_MS

Column Labels: MNHA_MF

Row Labels: MNHA_MP

Values: Sum of Expen...

Defer Layout Update

Update

GRAND TOTAL (GT) Dummy FINAL_NEW Sheet1 Database_new 10D MSC MPC MFC ID Database BBH

Ready

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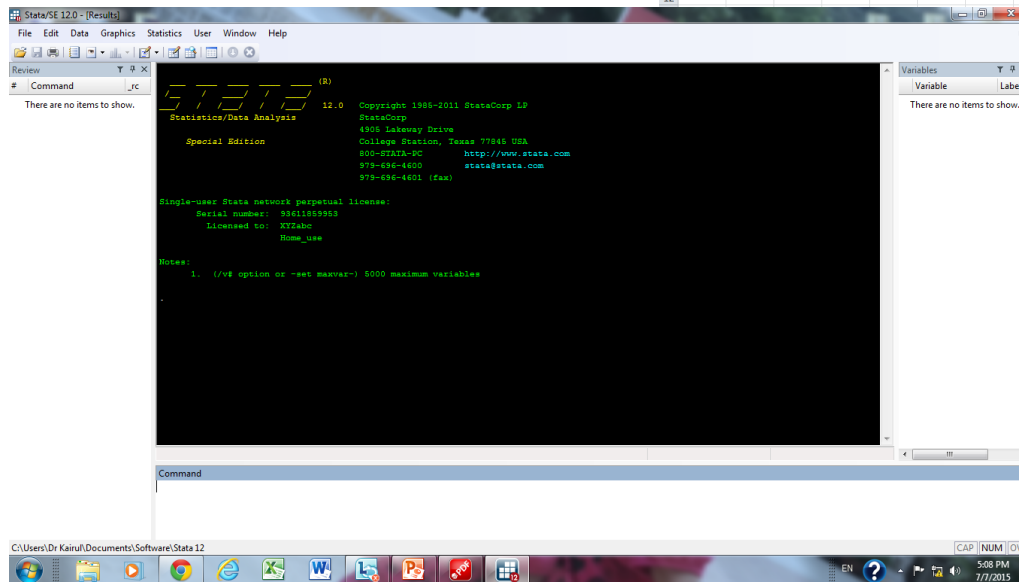
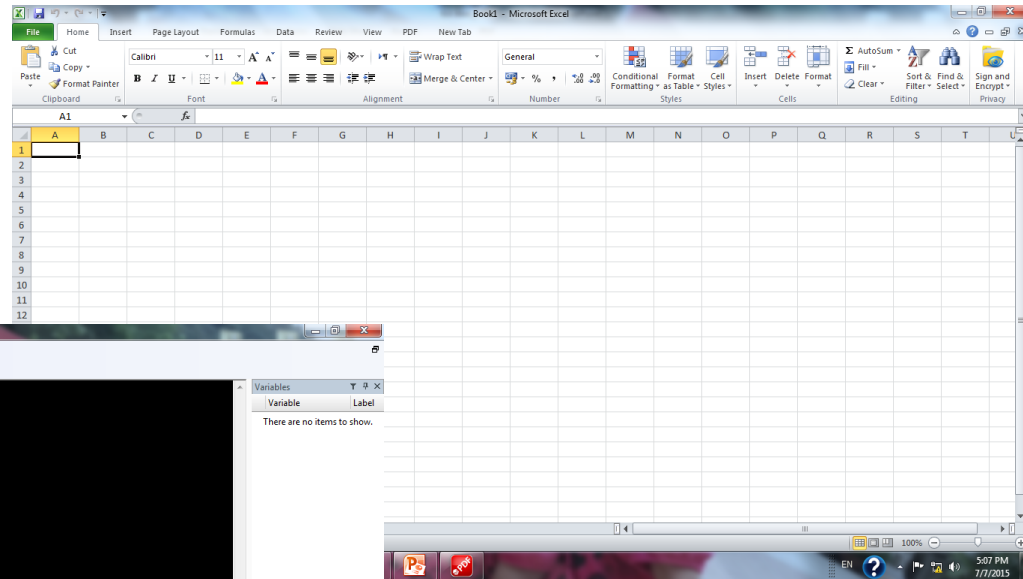
3. DATA ANALYSIS



2 main software used in analysis
of MOH data are:

❖ Excel

❖ Stata



3. DATA ANALYSIS



❖ Command

The screenshot displays the Stata/SE 12.0 software interface. The main window is the 'Do-file Editor - Hospital_KA2016.do', which contains the following Stata commands:

```
975  
976 use temp/hos_15_ipv,clear  
977 append using temp/hos_15_opv  
978 append using temp/hos_15_dycv  
979  
980  
981 drop expenditure  
982  
983 save temp/hos_15_3.dta,replace  
984  
985 use temp/hos_15_3.dta,clear  
986  
987  
988 merge m:1 mnha_function using input/function.dta  
989 drop _merge  
990 drop if year==.  
991 merge m:1 mnha_source using input/source.dta  
992 drop _merge  
993 drop if year==.  
994 merge m:1 mnha_provider using input/provider.dta  
995 drop _merge  
996 drop if year==.  
997 drop kodmak kodptjhe pusatkos pa_aktiviti kodsodo Program perbelanjaan Sub_aktiviti  
998  
999 *step 4  
1000  
1001 drop labeldbstate Agency mnha_source mnhasource_label icha_source ichasource_labe  
1002 rename mnhafunction_code MNHA_Function  
1003 rename ichafunction_code ICHA_Function  
1004 rename mnhasource_code MNHA_Source  
1005 rename ichasource_code ICHA_Source  
1006 rename mnhanprovider_code MNHA_Provider
```

The Command window on the left shows the following commands being executed:

```
doedit "C:\Users\Dr Kairul\Documents\Software\Stata 12  
> MOH 2017\prog\Do file SUDAH\A2016.do"
```

The status bar at the bottom indicates the file path: C:\Users\Dr Kairul\Documents\Software\Stata 12. The taskbar shows various application icons, including Stata, Word, and Excel, along with the system clock showing 4:51 PM on 13/3/2017.

3. DATA ANALYSIS



1. Cleaning Data / Clarify with agencies/ counter check

Laporan Perbelanjaan Mengurus MOH 2014 10000-12999 [Compatibility Mode] - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L
1	Laporan Perbelanjaan MOH 2014											
2												
3	Functional area											
4	G/L Account											
5	Cost Center											
6	WBS element											
7	Structure											
8	0FUND_ZVOTE											
9												
10	Chart of accounts	FGCA										
11	Posting period	<= 13										
12	Fiscal Year Variant	K4										
13	Fiscal year	K4/2014										
14	FM area	FGOM										
15	0FUND_ZVOTE	KEMENTERIAN KESIHATAN										
16	G/L Account	10000..12999										
17												
18						Jumlah Perbelanjaan						
19	Vot	Kod PTJ (Header)	Kod PTJ/PK	Program/Aktiviti	Objek	RM						
20	B42	221180101	FGOM/251010101	B42010100	12104	8,755.26						
21					Result	8,755.26						
22					Result	8,755.26						
23			FGOM/251010103	B42010100	12104	50,500.23						
24					Result	50,500.23						
25					Result	50,500.23						
26			Result			59,255.49						
27		251010103	FGOM/251010101	B42010100	11101	960,194.02						
28					11301	309,058.20						
29					11601	13,064.38						
30						20,222.60						

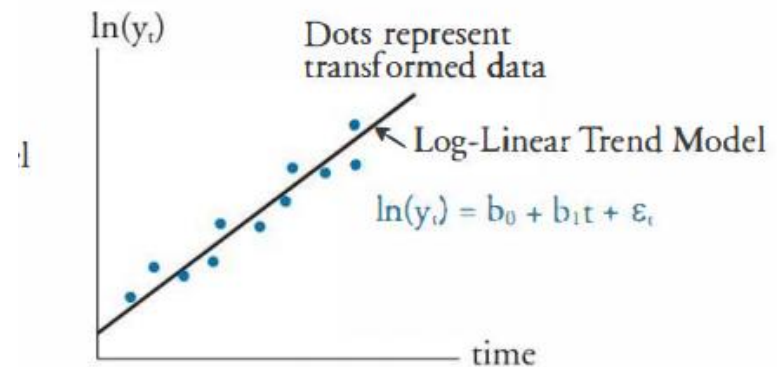
3. DATA ANALYSIS



2. Usage of statistical parameter/ variable to analyze:
- i. Household/ private consumption
 - ii. GDP
 - iii. population by state
 - iv. Interpolation/ extrapolation
 - v. Simple mathematical / statistical method



Log-Linear Trend Model

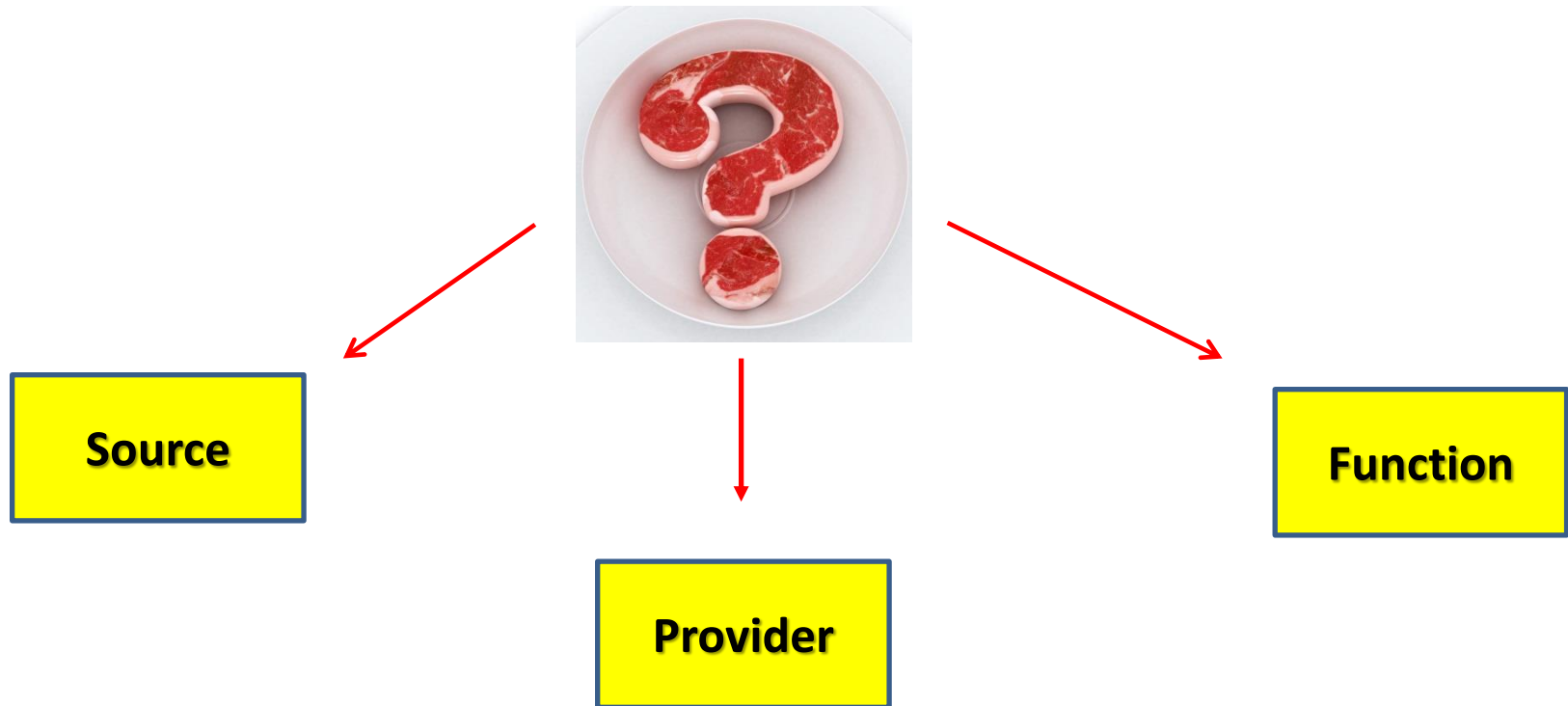


3. DATA ANALYSIS



3. Assign the Coding before develop database :

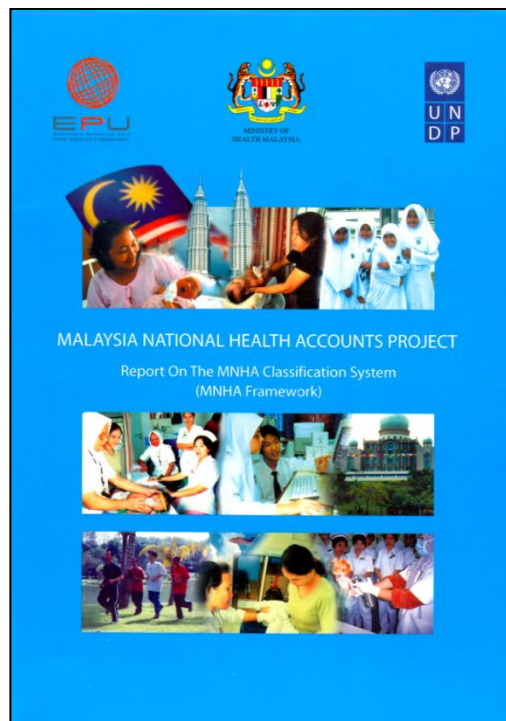
- dual data coding (MNHA & SHA-ICHA)



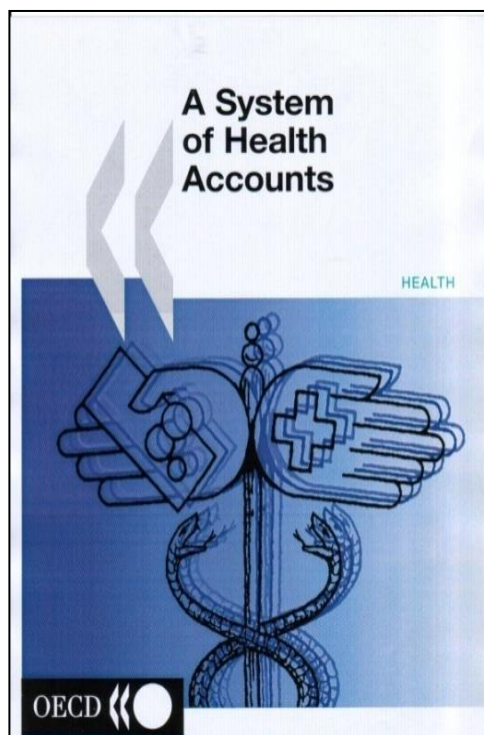
3. DATA ANALYSIS



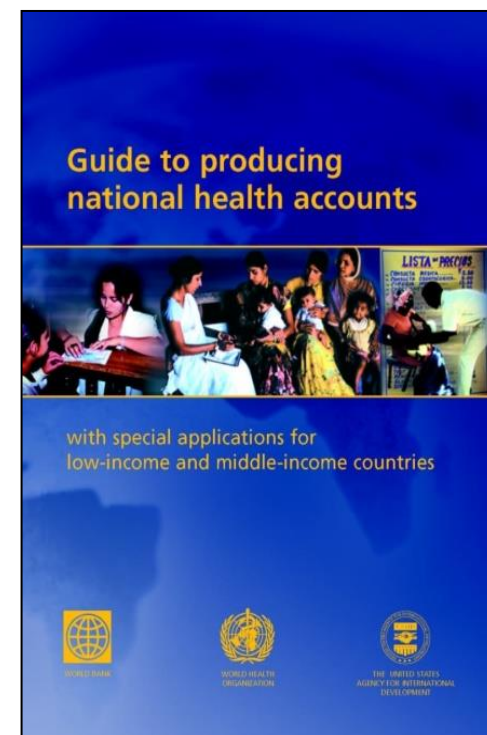
4. Data code according to MNHA classification (MNHA Framework) adopted from SHA (OECD:2000) classification



MNHA Framework



SHA Framework



Producer Guide

National

International

LIMITATION



LIMITATION



- ❖ No formal training for NHA in any country
- ❖ Production of individual diff level of understanding and expertise
- ❖ Turn over of staff
- ❖ MNHA database storage and backup



LIMITATION



❖ Missing data & data gaps / updated data /
new data ~ time series data (1997 – 2015)

VS

❖ Response Rate



LIMITATION



time series V3.xls [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View

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BB1696 =SUBTOTAL(9, BB1685:BB1695)

	A	B	C	AU	AV	AW	AX	AY	AZ	BA	BB	BC
			Applicant	Provider / Facility 6: Private Dialysis Clinics				Provider / Facility 7: Retail Sale Vision Products	Provider / Facility 8: Retail Sale Non-Vision Products			Provider / Facility 9: Pharmacies
	No	Year	State	Inpatient-06	Outpatient-06	Daycare-06	Total-06	Appliances vision-07	Appliances ortho-08	Appliances others-08	Total-08	Pharmaceuticals product-09
291	2005	Sabah Total	-	-	-	-	-	-	-	-	-	-
293	2005	Sarawak Total	-	-	-	-	-	-	-	-	-	-
295	2005	Selangor Total	-	-	-	-	-	-	-	-	-	-
297	2005	Terengganu Total	-	-	-	-	-	-	-	-	-	-
299	2005	W-KL Total	-	-	-	-	-	-	-	-	-	-
310	2005	W-Labuan Total	-	-	-	-	-	-	-	-	-	-
486	2006	Johor Total	-	5,031.00	1,926.59	6,957.59	-	12,100.00	12,240.00	24,340.00	448.27	-
612	2006	Kedah Total	-	-	9,576.60	9,576.60	750.00	6,150.00	13,015.41	19,165.41	7,396.34	-
629	2006	Kelantan Total	-	-	-	-	650.00	3,500.00	12,506.02	16,006.02	5,846.80	-
727	2006	Melaka Total	-	-	27,097.50	27,097.50	-	-	25,514.96	25,514.96	6,386.50	-
842	2006	Negeri 9 Total	-	-	2,079.45	2,079.45	-	4,200.00	24,592.96	28,792.96	6,736.10	-
936	2006	Pahang Total	-	-	3,099.92	3,099.92	-	28,210.00	10,297.50	38,507.50	4,224.76	-
985	2006	Penang Total	-	-	-	-	-	-	-	-	-	-
1111	2006	Perak Total	-	-	1,031.26	1,031.26	-	5,381.22	7,600.00	12,981.22	4,555.34	-
1149	2006	Perlis Total	-	-	-	-	5,618.64	-	1,987.13	1,987.13	1,851.30	-
1252	2006	Sabah Total	-	-	-	-	860.00	12,920.00	24,451.28	37,371.28	12,993.37	-
1375	2006	Sarawak Total	-	-	15,489.20	15,489.20	-	18,018.26	5,745.57	23,763.83	17,092.78	-
1501	2006	Selangor Total	-	10,877.00	20,327.89	31,204.89	-	29,903.63	10,590.19	40,493.82	1,113.22	-
1532	2006	Terengganu Total	-	-	-	-	-	-	1,380.00	1,380.00	151.80	-
1684	2006	W-KL Total	-	-	-	-	-	22,888.40	17,142.00	40,030.40	3,776.60	-
1696	2006	W-Labuan Total	-	-	-	-	6,834.81	-	-	-	-	-

Raw data state total Raw data ind by state 2003-2006 Percentage state Total state Analysis 1

Ready 100%

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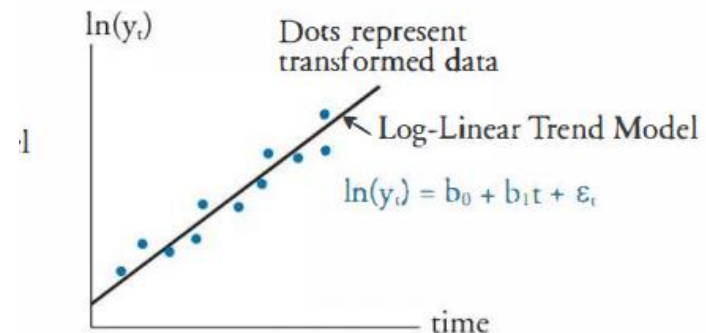
LIMITATION



- ❖ Usage of statistical parameter/ variable to analyze
 - i. Household/ private consumption
 - ii. GDP
 - iii. population by state
 - iv. Interpolation/ extrapolation
 - v. Simple mathematical / statistical method



Log-Linear Trend Model



LIMITATION



Claim_time series V3.xls [Compatibility Mode] - Microsoft Excel

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AVERAGE $=EXP(LN(M118/L118)/1)$

	A	B	C	D	E	I	J	K	L	M	N
1	A.Raw data for Total health expenditure were available 1997-2009										
2	Jadual A: Jumlah										
3		Pekara	Data Source			2000	2001	2002	2003	2004	2005
109		Growth factor			1.16				1.06	1.47	0.94
110		Estimated exp approved using growth factor				596269	689199	796613	920,767	971,890	1,428,895
111											
112											
113	6) Pahang										
114	Data no of expenditure 2004-2006 were available,Using log linear to filled up										
115	Obtained he by using growth factor										
116	6	Kuching, Sarawak	Data Source			2000	2001	2002	2003	2004	2005
117		No of cases approved	Kuching, Sarawak						261	336	382
118		Amaun	RM Kuching, Sarawak						2,455,345	2,321,077	2,854,637
119		Growth factor			0.89				$=EXP(LN(M118/L118)/1)$		0.49
120		Estimated exp approved using growth factor				3483686	3100251	2759019	LN(number) 2,400,340	2,321,077	2,854,637
121											
122											
123	7) Melaka										
124	Data no of applicant 2003-2006 were available,Using log linear to filled up all y										
125	Obtained he by using growth factor										
126	7	Melaka	Data Source			2000	2001	2002	2003	2004	2005
127		No of cases approved	Melaka						640	500	505

Raw data state_total Raw data ind by state 2003-2006 Percentage state Total state Analysis 1

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LIMITATION



time series V3.xls [Compatibility Mode] - Microsoft Excel

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	A	B	C	K	L	M	N	O	P	Q	R	S
1												
2												
3				Facility 3: Pb (Non MOH Corporatized)		Provider / Facility 4: Private Hospitals			Provider / Facility 5: Private Clinics			Provider / Facility 6: Private Clinics
4		State	Code State	MP1.1.1b	MP1.1.1b	MP1.1c	MP1.1c	MP1.1c	MP3.1c	MP3.1c	MP3.1c	MP3.5.4c
5				Outpatient-03	Daycare-03	Inpatient-04	Outpatient-04	Daycare-04	Inpatient-05	Outpatient-05	Daycare-05	Inpatient-06
6				MF1.3.3	MF1.2	MF1.1	MF1.3.3	MF1.2	MF1.1	MF1.3.3	MF1.2	MF1.1
154	2006	Melaka Total	4	4,036	2,243	2,885,401	153,286	167,267	12,111	45,951	7,743	-
155	2006	Negeri 9 Total	5	2,402	1,335	1,717,243	91,228	99,549	7,208	27,348	4,608	-
156	2006	Pahang Total	6	1,505	836	1,075,976	57,161	62,374	4,516	17,135	2,887	-
157	2006	Penang Total	7	258	143	184,269	9,789	10,682	773	2,935	494	-
158	2006	Perak Total	8	4,138	2,299	2,958,026	157,144	171,477	12,415	47,108	7,938	-
159	2006	Perlis Total	9	151	84	107,777	5,726	6,248	452	1,716	289	-
160	2006	Selangor Total	10	12,216	6,789	8,733,473	463,963	506,279	36,656	139,084	23,435	-
161	2006	Terengganu Total	11	218	121	156,200	8,298	9,055	656	2,488	419	-
162	2006	Sabah Total	12	1,195	664	854,621	45,401	49,542	3,587	13,610	2,293	-
163	2006	Sarawak Total	13	1,579	878	1,128,889	59,972	65,442	4,738	17,978	3,029	-
164	2006	W-KL Total	14	15,431	8,576	11,032,274	586,086	639,541	46,304	175,694	29,604	-
165	2006	W-Labuan Total	15	111	62	79,359	4,216	4,600	333	1,264	213	-

Ready Count: 3 110%

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LIMITATION



LIMITATION										
year	state	agency	MNHA Source Database Code	MNHA Provider Database Code	MNHA Function Database Code	Exp	ICHA Source Database Code	ICHA Provider Database Code	ICHA Function Database Code	
2015	03	1111050304	1111	3201	1320	14113.7	111	320	132	
2015	02	1111050202	1111	3201	1320	312	111	320	132	
2015	06	1111050605	1111	3201	1320	14.6325	111	320	132	
2015	11	1111051102	1111	3201	8100	11868.461	111	320	810	
2015	01	1111050106	1111	3201	8100	5469.9	111	320	810	
2015	06	1111050605	1111	3201	1320	3729.452	111	320	132	
2015	03	1111050310	1111	3201	6202	92420.2566	111	320	620	
2015	12	1111051204	1111	3201	6202	1326.696	111	320	620	
2015	11	1111051101	1111	3201	1320	7.8	111	320	132	
2015	03	1111050305	1111	3201	8100	17526.4356	111	320	810	
2015	01	1111050106	1111	3201	1320	465.65376	111	320	132	
2015	10	1111051003	1111	3201	6202	5407.983	111	320	620	
2015	12	1111051203	1111	3201	6202	2016	111	320	620	
2015	14	1111051408	1111	3201	1320	11893.80144	111	320	132	
2015	06	1111050605	1111	3201	1320	75.4953	111	320	132	
2015	10	1111051002	1111	3201	1320	203.25	111	320	132	
2015	05	1111050506	1111	3201	1320	156	111	320	132	
2015	07	1111050704	1111	3201	1320	339.11748	111	320	132	
2015	02	1111050201	1111	3201	8100	988.35	111	320	810	
2015	13	1111051310	1111	3201	8100	4010.4036	111	320	810	
2015	11	1111051101	1111	3201	1320	1171.48908	111	320	132	
2015	02	1111050207	1111	3201	6202	1512	111	320	620	
2015	12	1111051204	1111	3201	1320	230.4405	111	320	132	
2015	10	1111051007	1111	3201	6202	83.16	111	320	620	
2015	02	1111050208	1111	3201	8100	11183.61	111	320	810	
2015	01	1111050103	1111	3201	8100	93110.5518	111	320	810	
2015	03	1111050310	1111	3201	1320	64.25	111	320	132	
2015	02	1111050207	1111	3201	1320	145.72584	111	320	132	

LIMITATION



❖ Final production of individual agency database : 10D – in Excel & STATA

1. Year
2. ID agency
3. State
4. MNHA source code
5. MNHA provider code
6. MNHA function code
7. Expenditure (MYR)
8. ICHA source code
9. ICHA provider code
10. ICHA function code

Merging individual agency
database into 1 final MNHA
time-series database annually

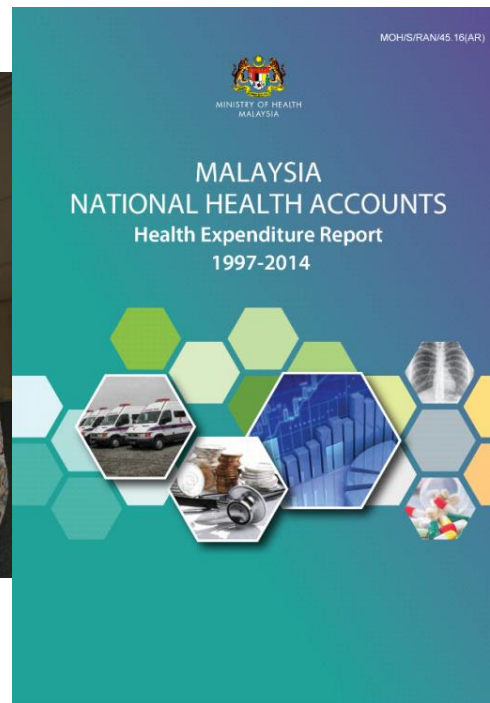


LIMITATION



❖ Verification of data value and coding

- by individual agencies (MNHA Technical Team)
- **NEW**: all this output will be verified by MNHA Technical Advisory Committee (MNHA-TAC)



bila bomba arkitek doktor akauntan **pelukis komik** pencuci jamban
 jurutera jururawat **designer** penyanyi ustaz cikgu tentera polis
 kontraktor nelayan penjaga **artis 3D** tukang masak
 pelumba kereta penjual sayur
besar SAYA **pelukis grafik** komposer lagu
 nanti pemain bola sepak
 ahli kimia saintis tukang kasut engineer
 ahli masjid pustakawan **nak jadi** ahli perubatan colorist
 waiter **kartunis** deejay radio setiausaha office boy
fine artist operator kilang biologist **apa ek?**
 doktor **gigi** usahawan pelukis ilustrasi jurujual petani mekanik
 juruterbang manager jurufoto supervison artis video pelukis kretif
 pereka multimedia penari pentas pereka audio **tukang jahit**
penjaga kubur pengembala biri-biri art designer pemandu
 teksi businessman pengacara **ahli muzik**
 creative director penulis

ThAnK YoU...

