

# Use of ICD in Malaysia: Report to APN of WHO-FIC 2015

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# Outline

- Background of Malaysia
- Malaysian Health System
- Use of ICD in Malaysia
- Issues of Implementation of Casemix System in Malaysia
- Impact of Coding Errors on Hospital Income
- Conclusion

# Malaysia



# Malaysia

Population: 30 Millions (2014)

Population Growth Rate: 1.58% per year

Dependency Ratio: 52.9%

Two main areas: West Malaysia (Peninsular Malaysia)  
East Malaysia (Sabah & Sarawak)

Size: 329,000 sq. km

GNP per capita: US 10,804 - 2014

(Upper-middle-income)

Urban population: 71%

Literacy rate: 95%

Elderly population: 5.7% (> 60 years)

Access to safe water: 96%

# Health Indicators: 2000-2013

Indicators	2000	2005	2008	2010	2013
Life Expectancy At Birth (Years)					
Male	70.0	70.6	71.6	71.9	72.6
Female	75.1	76.4	76.4	77.0	77.2
Crude Birth Rate (per 1,000 pop)	24.5	21.0	18.4	17.5	17.2
Crude Death Rate (Per 1,000 pop)	4.4	4.5	4.7	4.8	4.7
Infant Mortality Rate (per 1,000 lv. births)	6.6	5.8	6.2	6.8	6.6
Toddler Mortality Rate (per 1,000 toddlers pop)	0.6	0.5	0.4	0.4	0.4
Maternal Mortality Rate (per 100,000 live births)	30	30	27.3	27.0	25.6
Perinatal Mortality Rate (per 1,000 total births)	7.5	6.8	7.3	7.8	7.4
Neonatal Mortality Rate (per 1,000 live births)	3.8	3.8	3.9	4.4	4.0

# Public Healthcare System

## ■ Public Sector

- Ministry of Health
- Ministry of Education
  - **University Hospitals**
    - UMMC (University of Malaya)
    - HUKM (Universiti Kebangsaan Malaysia)
    - HUSM (Universiti Sains Malaysia)

- ❖ Ministry of Internal Affairs
  - Hospital for the Aborigines
- ❖ Ministry of Defence
  - Military Hospitals
- ❖ Ministry of Unity and Social Welfare
  - Nursing Homes
- ❖ Local Authorities
  - Big Cities: Kuala Lumpur, Ipoh, Malacca and Penang

# Ministry of Health Malaysia

- Main provider of health care services
- Responsible for health policy matters
- Main regulator of healthcare services
- Very dominant role in Malaysian Health Care System

# Ministry of Health Malaysia

- Three Levels of Administration
  - National Level
  - State Level
  - District Level



# Hospitals Services (2014) (Facilities)

- Nos. of MOH Hospitals : 132
- Nos. of MOH Special Institutions: 9
- Nos. of Non-MOH Public Hospitals: 8
- Nos. of Private Hospitals,  
Maternity/Nursing Homes/Hospice: 252

# Hospitals Services (2014) (Beds)

- Nos. of MOH Beds : 34,576 (60%)
- Nos. of Beds in MOH Special Institutions:  
5,152 (9%)
- Nos. of Beds in Non-MOH Public  
Hospitals: 3,709 (6%)
- Nos. of Private Hospitals,  
Maternity/Nursing Homes Beds : 14,602  
(25%)

# Malaysia

- Source of Health Financing
  - General Taxation (40.8%)
  - Out-of-pocket payment (40.7%)
  - Private Health Insurance (8.0%)
  - Social Security (3.6%)
  - Others (6.9%)
- Total Health Expenditure (2013)
  - 4.4% of GDP
  - 52.7% Government and 47.3% Private
  - Per capita = USD 463

# Use of ICD in Malaysia

- ICD-10 used nationwide since 1999
  - Public Hospitals
  - Health Clinics
  - Private Hospitals in 2003 after introduction of PHFA(1998)
- ICD-9CM for Procedure Classifications
  - First started in 1995 as Casemix Pilot Project
  - Use in Teaching Hospitals in 2002
  - Public Hospitals from 2011

# Use of ICD in Malaysia

- Both for Mortality and Morbidity Reporting
- Recently more emphasis on Morbidity Reporting
- Doctors responsible for Discharge Diagnosis and Cause of Deaths
- Coding done by Medical Record Officers

# Use of ICD in Malaysia

- Mortality Data
- Morbidity Data
- Medical Documentation
- Casemix System
  - Quality Assurance Programme
  - Budgeting
  - Provider Payment (in the planning)

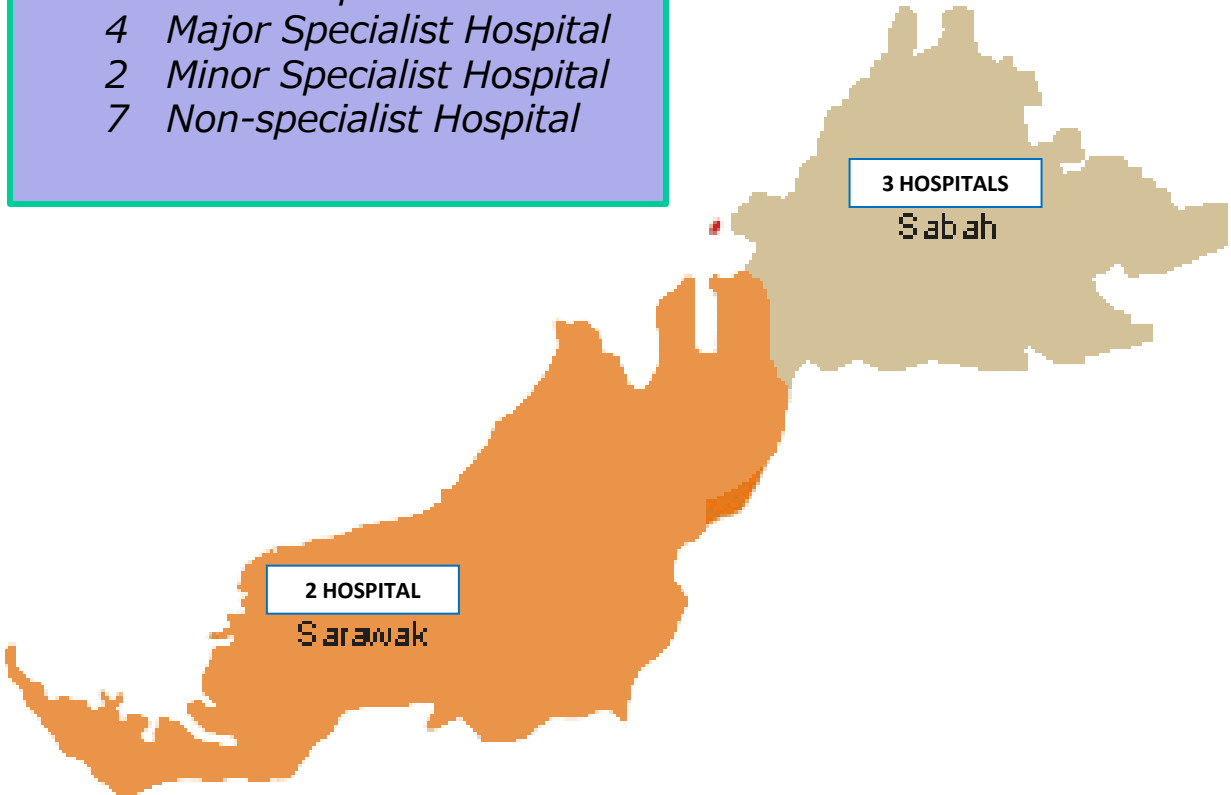
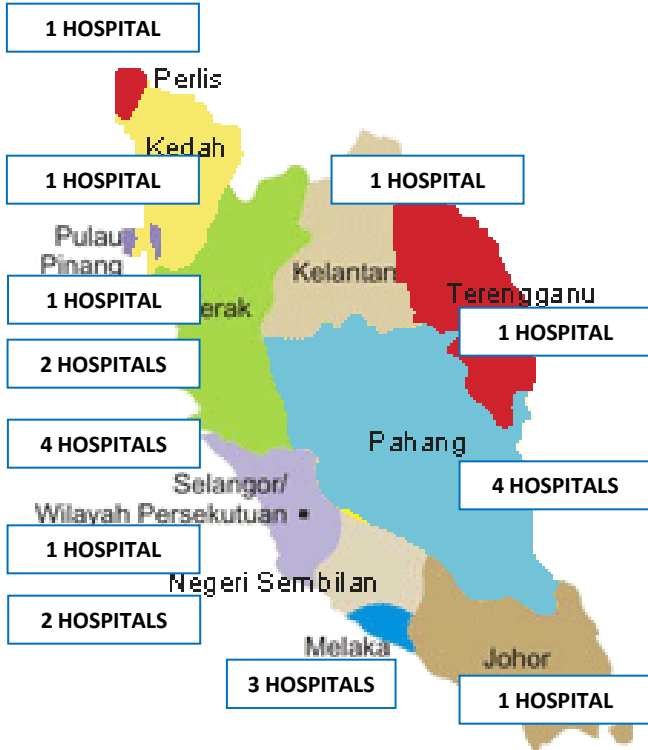
# Overview...

## Implementation of Casemix in MOH Malaysia

*On board...*

**13 States**  
**27 Hospitals**

- 13 State Hospital
- 4 Major Specialist Hospital
- 2 Minor Specialist Hospital
- 7 Non-specialist Hospital



# Major Issues in Implementation of ICD Classification for Casemix in Malaysia

- Confusion on the rules of Morbidity and Morbidity Coding
- Single Dx Coding vs Multiple Dx Coding
  - Most public hospitals conduct Single Coding
  - Only Casemix Pilot Hospitals Conduct Multiple Coding
- Major weakness in Procedure Coding
  - Lack of good procedure classification system
  - Unclear guidelines of selection of procedures



# Major Issues in Implementation of ICD Classification for Casemix in Malaysia

- Lack of buy-in by Clinicians
  - Poor documentation of clinical information by responsible physicians
  - Incomplete case summary
  - Lack of understanding on the use of casemix
- Lack of expertise on Casemix System Development and Implementation in MOH
  - Poorly developed training programme

# Major Issues in Implementation of ICD Classification for Casemix in Malaysia

- Poorly developed Grouping Logic
  - Driven by IT staff with no clinical background
  - High level of errors
- Lack of Casemix Costing Data
  - No expertise in MOH Malaysia on Casemix Costing
  - Costing Data not properly collected and analysed
  - Delay in development of national casemix tariff for prospective payment

# CASEMIX IMPLEMENTATION IN TWO TEACHING HOSPITALS IN MALAYSIA

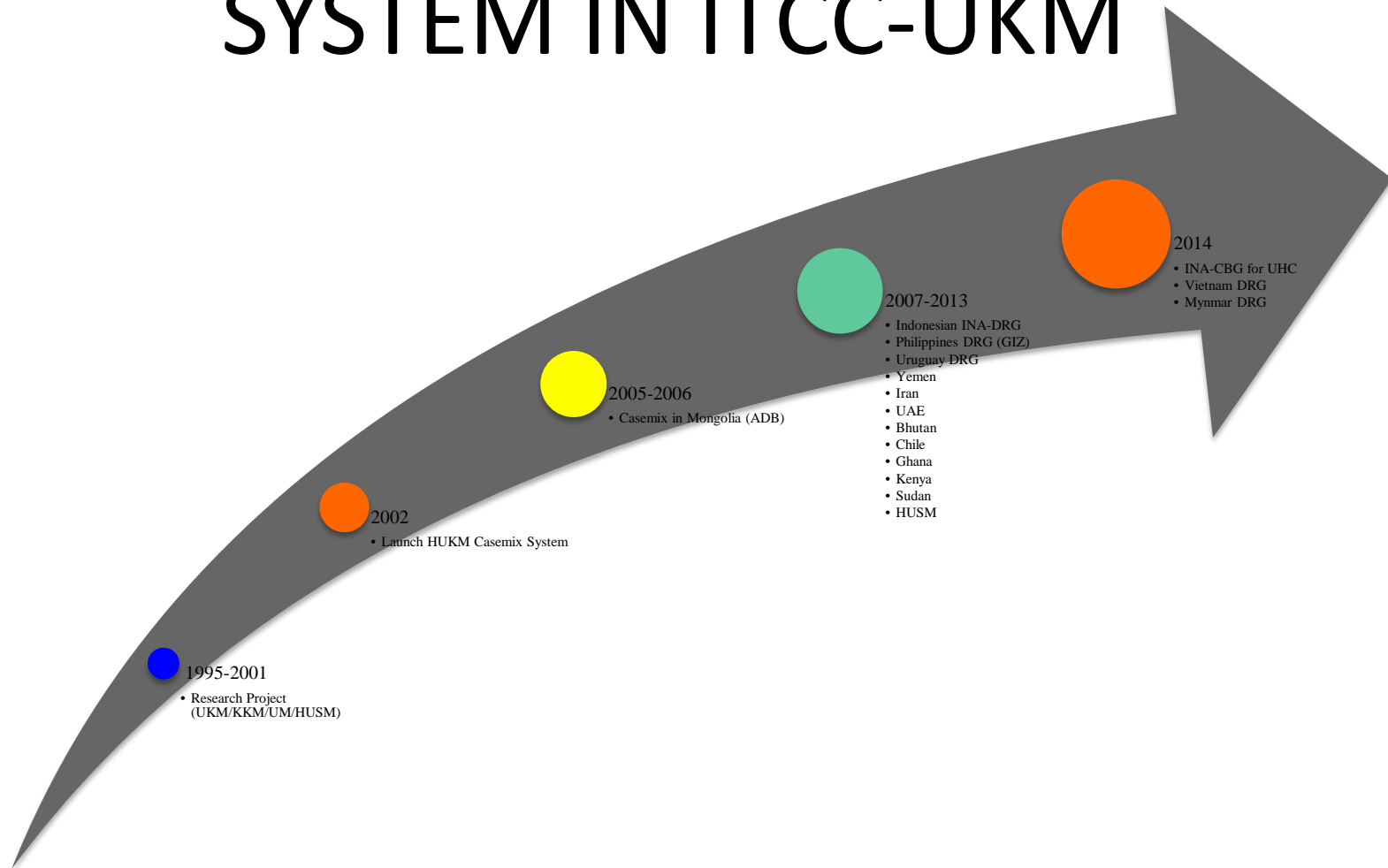


**UKM MEDICAL CENTRE  
KUALA LUMPUR**

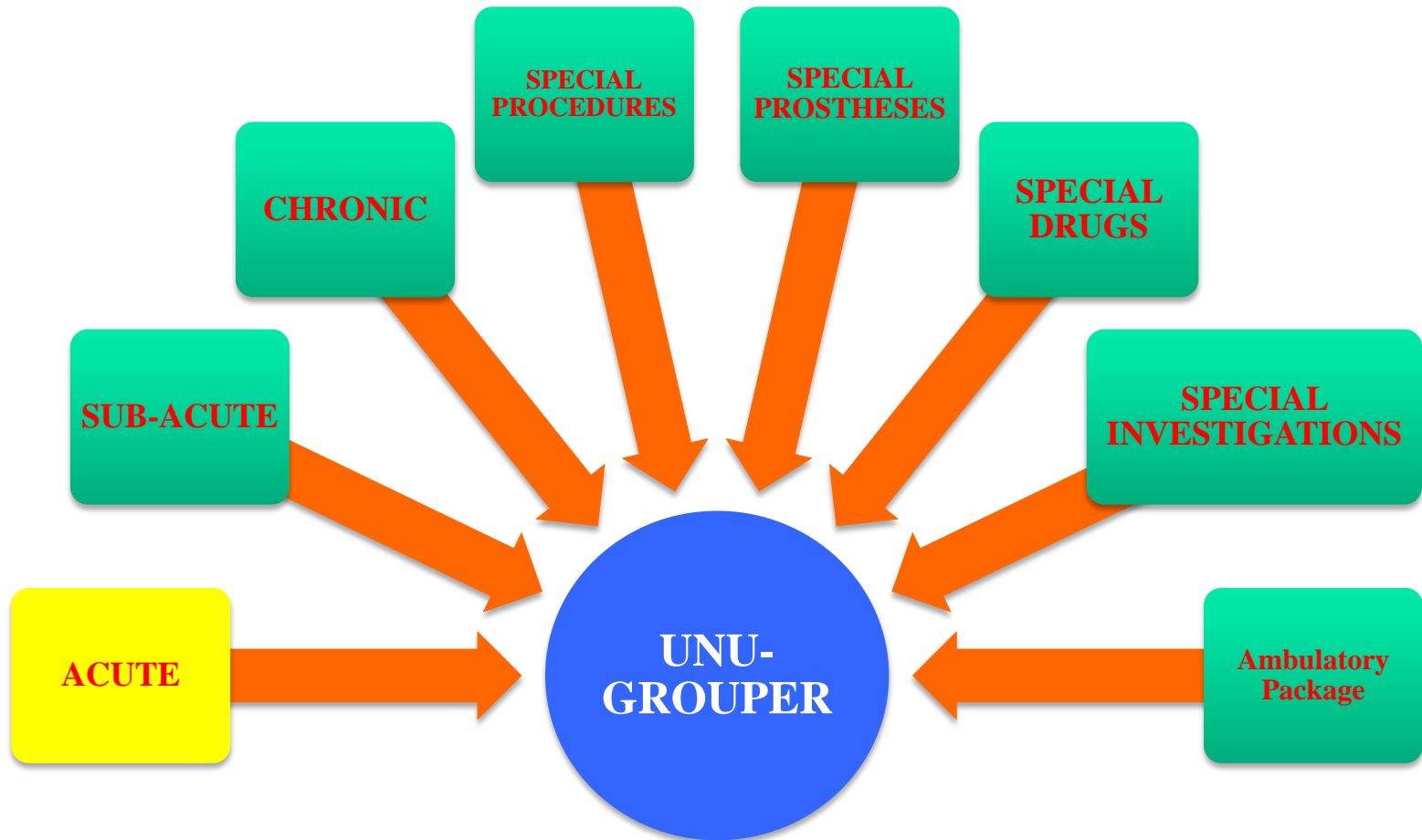


**USM TEACHING HOSPITAL  
KOTA BARU, KELANTAN**

# DEVELOPMENT OF CASEMIX SYSTEM IN ITCC-UKM



# EIGHT COMPONENTS OF UNU-CASEMIX GROUPER (MY-DRG)



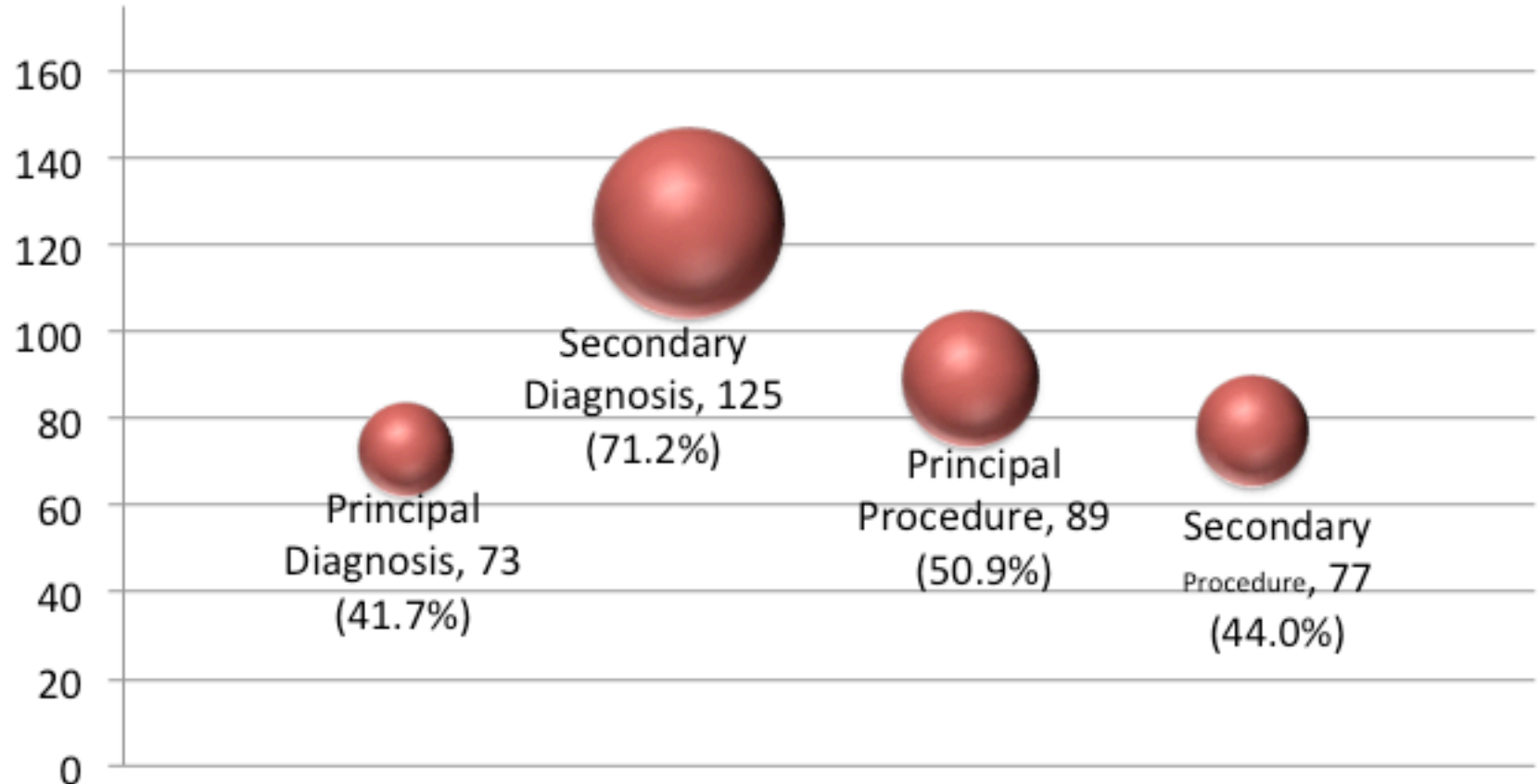
Case-Mix Major Groups (CMG)	CMG Codes	Nos of Discharges	%
Infectious & parasitic diseases Groups	A	715	2.8
Hepatobiliary & pancreatic system Groups	B	742	2.9
Myeloproliferative system & neoplasms Groups	C	618	2.4
Haemopoeitic & immune system Groups	D	1217	4.7
Endocrine system, nutrition & metabolism Groups	E	631	2.4
Mental Health and Behavioral Groups	F	413	1.6
Central nervous system Groups	G	1595	6.2
Eye and Adnexa Groups	H	403	1.6
Cardiovascular system Groups	I	2167	8.4
Respiratory system Groups	J	2148	8.3
Digestive system Groups	K	2025	7.8
Skin, subcutaneous tissue & breast Groups	L	900	3.5
Musculoskeletal system & connective tissue Groups	M	1903	7.3
Nephro-urinary System Groups	N	1441	5.6
Deleiveries Groups	O	3998	15.4
Newborns & Neonates Groups	P	442	1.7
Ambulatory Groups-Episodic	Q	0	0.0
Injuries, poisonings & toxic effects of drugs Groups	S	207	0.8
Substance abuse & dependence Groups	T	28	0.1
Ear, nose, mouth & throat Groups	U	888	3.4
Male reproductive System Groups	V	458	1.8
Female reproductive system Groups	W	2026	7.8
Factors influencing health status	Z	147	0.6
<b>Coding Errors</b>	<b>X</b>	<b>797</b>	<b>3.1</b>
<b>Total</b>		<b>25,909</b>	<b>100.0</b>

# Coding Errors In A Teaching Hospital (N=175 Cases Reviewed)



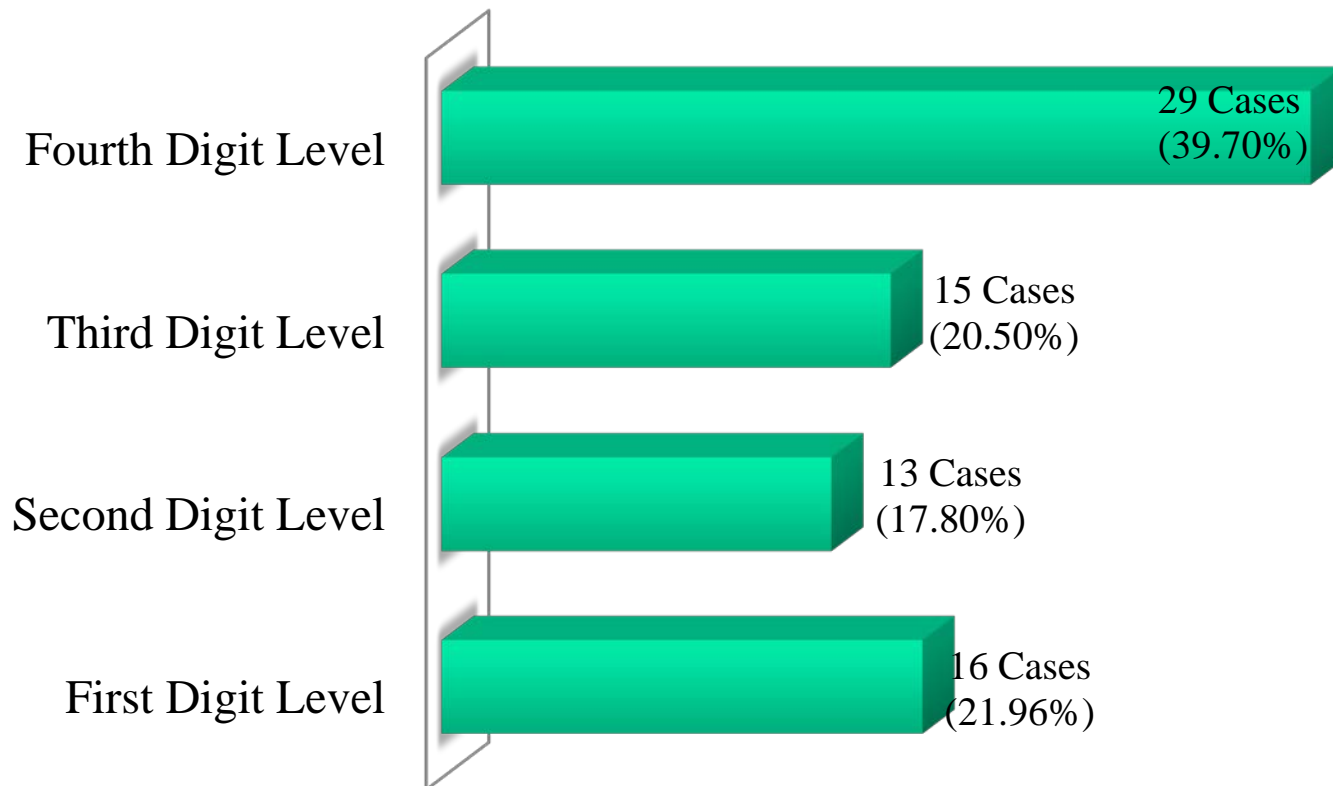
# Distribution of Coding Errors

## Coding Errors

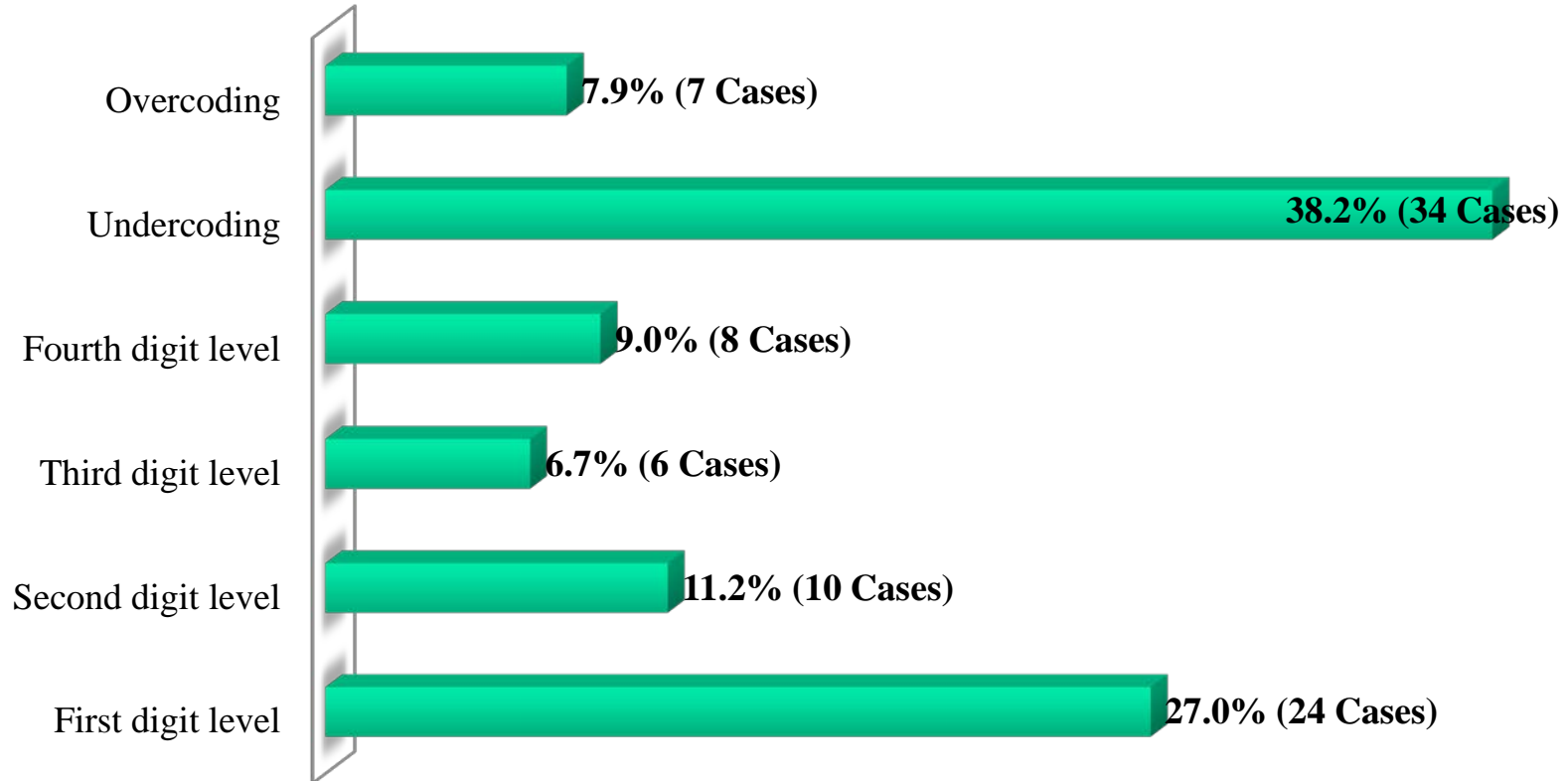




# Coding Errors in Principal Diagnosis

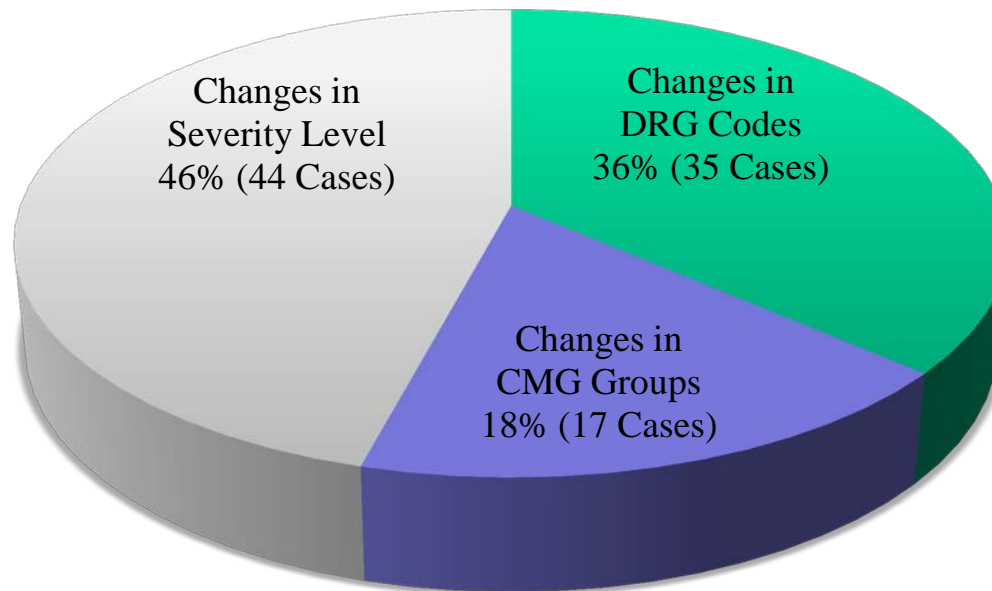


# Coding Error in Primary Procedure

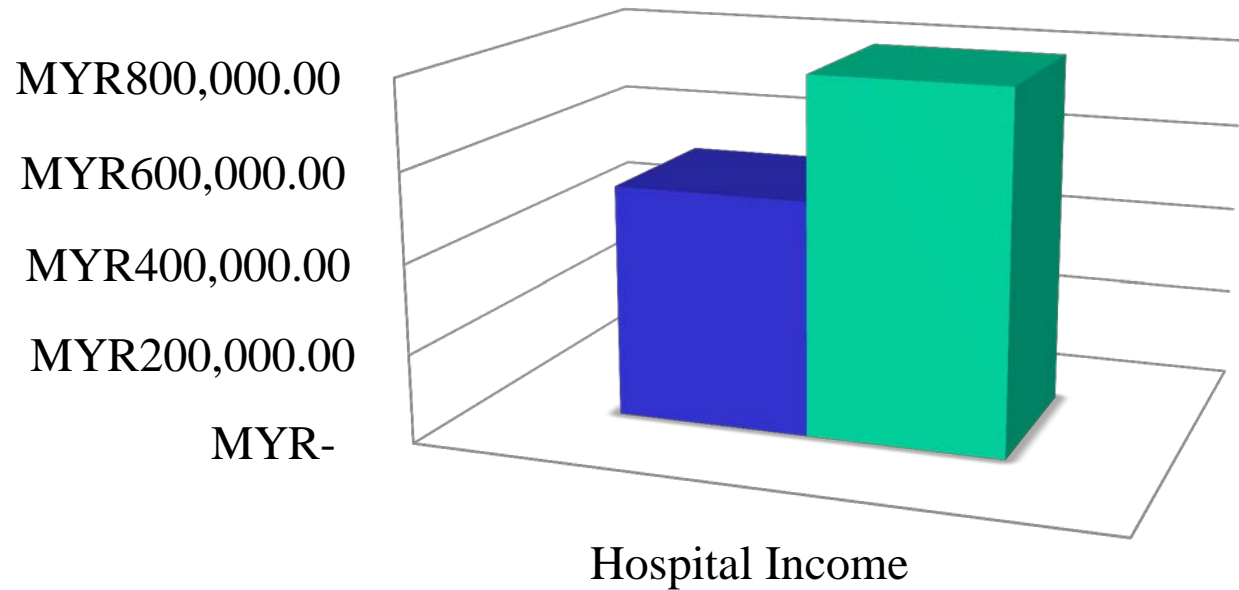


# Coding Errors Resulting in Change in DRGs

- 54.9% (96 cases) of error cases have resulted changes in MY-DRG code



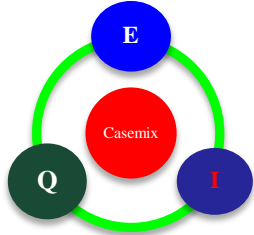
# Impact of Coding Errors on Hospital Income



	Hospital Income
■ Income with Coding Errors	MYR525,434.00
■ Income without Coding Errors	MYR799,271.00

# Conclusion

- ◆ ICD is being used actively for morbidity and mortality coding
- ◆ Focus now is on the use of ICD for Dx and Procedure Classification in Casemix System for provider payment
- ◆ Lack of proper training, monitoring and expertise in clinical coding has negative impact on implementation of casemix system in Malaysia
- ◆ Efforts has to be made to address all issue of coding of ICD in the future



# Thank You

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