Supply of Medical Doctor in Dual Setting of Southeast Asia's Health Service

Andreasta Meliala

Department of Public Health

Faculty of Medicine, Universitas Gadjah Mada

Outline

- Reasons behind production
- Production & Quality
- Where are they?
- Medical Tourism: an opportunity or challenge
- Brain drain issues
- Conclusion

Health System Performance (Maternal-Child Mortality)

Country	Level of M-C MR			Remarks
	low	mid	High	
Brunei, Singapore, Malaysia, Thailand	X			early, rapid downward trends
Indonesia, Vietnam, Phillipines		X		sustained by Vietnam but faltering in the Philippines and Indonesia
Laos, Cambodia, Myanmar			X	high initial rates with a downward trend

The main reason to produce medical doctors and medical specialist

Source: Acuin et al. 2011 (Lancet 2011: 377; 516–25)

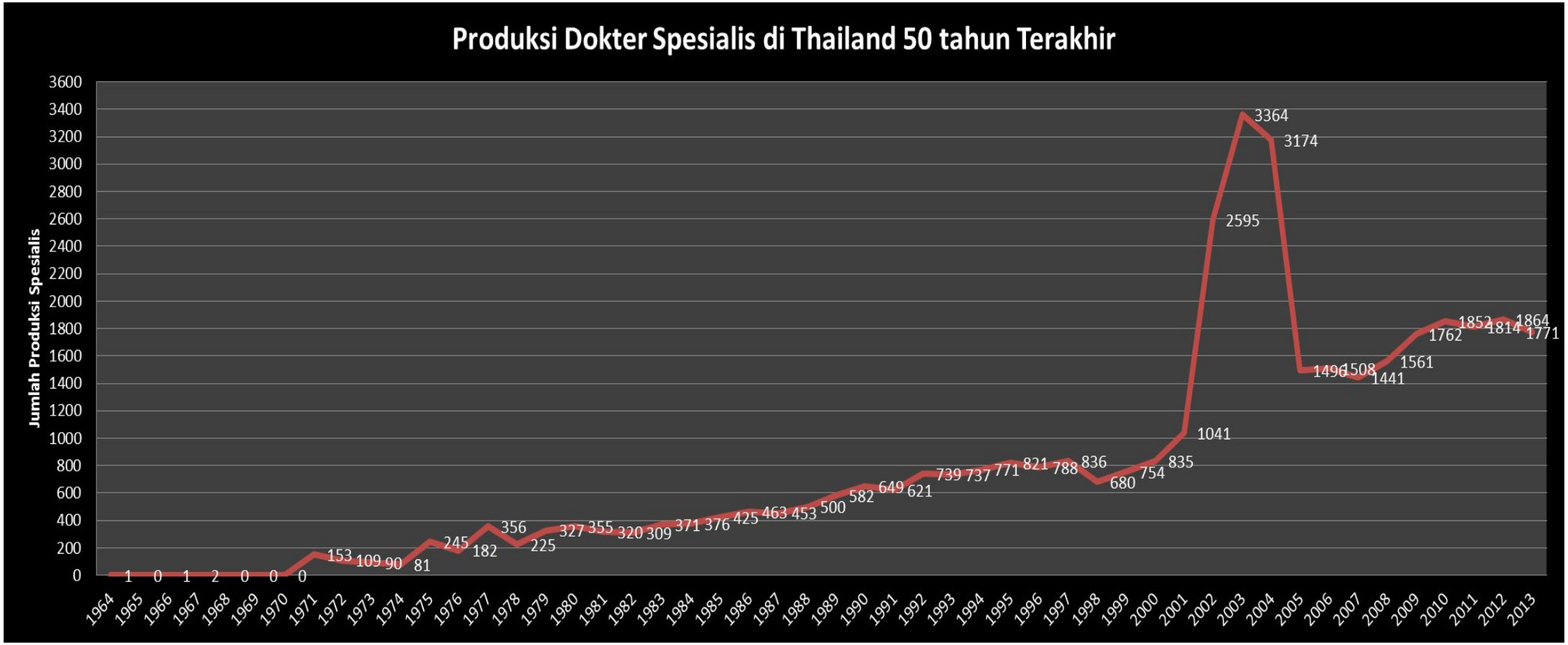
Market Mechanism: International Patient and Revenues

Country	Number of International Patient Treated	Revenues (USD)	Remarks
Thailand	1,250,000	2.4 Billion	86.2 Million came form ASEAN patients
Malaysia	400,000	90.5 Million	Estimated to be doubled within 5-10 years
Singapore	370,000	725.8 Million	Target: 1 million foreign patients in 2012

Sources: UN ESCAP/2009; Pocock & Phua/2011; Kasikorn Research/2012; Chee/2010

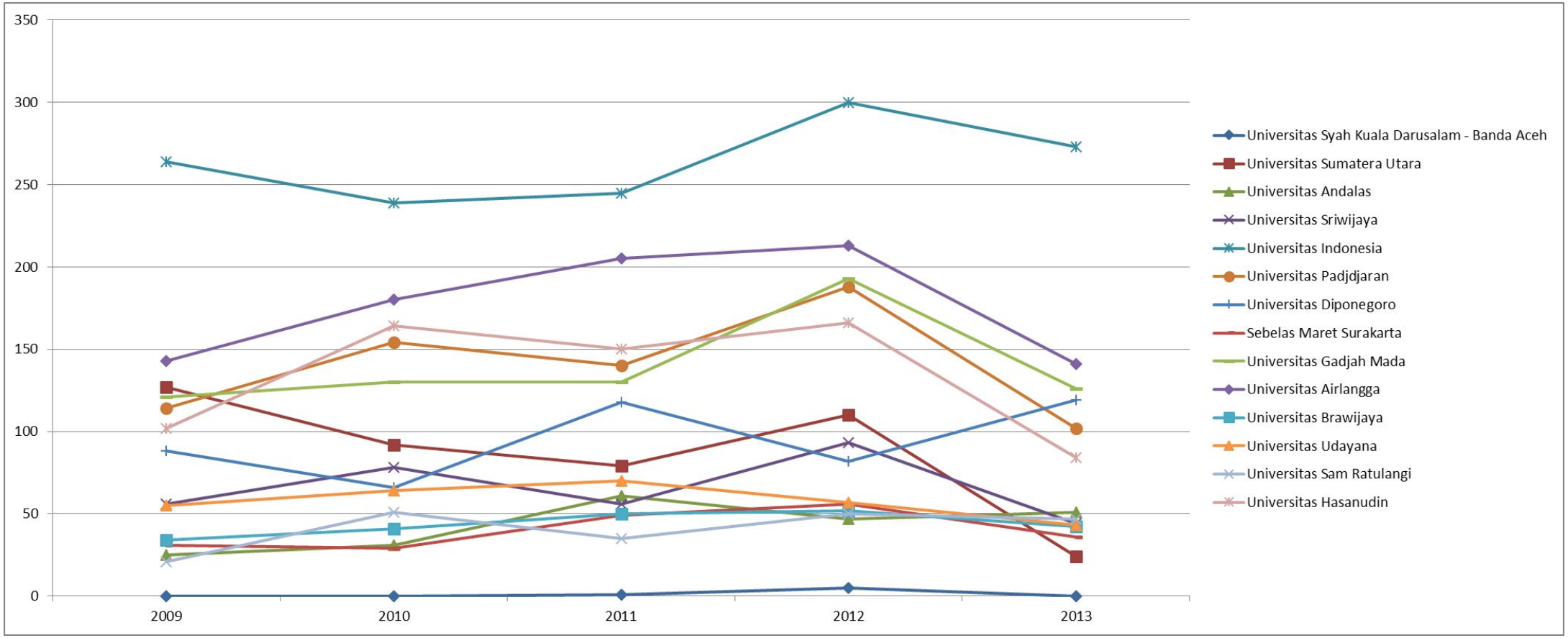
Production, Availability & Quality

Production: Thai Specialist (1964-2012)



Courtesy of Dr Piya Hanvoravongchai

Production (2): Indonesian Medical Specialist



(Sources: AIPKI, 2013)

Ratios

	Population (millions)	Number		Density per 1000 population			Gap in health workers*†	Ratio of nurses and midwives per doctor†
		Doctor	Nurse and midwife	Doctor	Nurse and midwife	Combined		
Brunei	0·4	400	2120	1·1	6·1	7·2	..	5·3
Singapore	4·4	6380	18710	1·5	4·4	5·9	..	2·9
Malaysia	26·6	17020	43380	0·7	1·8	2·5	..	2·5
Thailand	63·9	31855	140404	0·5	2·2	2·7	..	4·6
Philippines	88·0	90370	480910	1·2	6·1	7·3	..	5·3
Indonesia	231·6	56938	387458	0·2	1·7	1·9	83652	6·8
Vietnam	87·4	43292	77233	0·5	0·8	1·4	78747	1·8
Laos	5·9	1863	5363	0·3	0·9	1·2	6226	2·9
Cambodia	14·4	2047	11125	0·2	0·9	1·1	19660	5·4
Myanmar	48·8	17791	49341	0·4	1·0	1·4	44132	2·8
ASEAN	571·4	266301	1248117	0·5	2·2	2·7	..	4·7
Global	6659·0	8404351	17651585	1·3	2·8	4·1	..	2·1

Population data and health professional statistics for 2000–07 are from reference 7; data for health professionals from Thailand,[8,9] Indonesia,[10] Vietnam,[11] and Laos[12] are from country sources. ASEAN=Association of Southeast Asian Nations. *Number of additional health workers needed to achieve the WHO threshold of 2·28 doctors, nurses, and midwives per 1000 population; the total number of additional health workers needed in these five critical shortage countries is 232 417 (for the ASEAN region overall, there is no shortage). †Authors' calculation.

Table 1: **Basic health professional statistics for countries in southeast Asia**

(Source: Kanchanachitra et al. 2011)

Availability (WHS, 2013; BPPSDM, 2012)

Country	Health Workforce per 10,000 populations				
	Physician	Nurse & Midwife	Pharma cist	PH profes-si onals	CHW
Indonesia	2.0	13.8	1.0	1.8	--
Malaysia	12.0	32.8	3.1	--	--
Brunei	13.6	70.2	1.0	--	--
Vietnam	12.2	10.1	0.7	--	--
Singapore	19.2	63.9	3.9	--	--

Health Professional	Numbers	Ratio to 100,000 population
Specialist Doctor	29.452	12,00
General Practitioner	117.808	48,00
Nurse	387.785	158,00
Midwife	184.075	75,00
Pharmacist	29.452	12,00
Assistant Pharmacist	58.904	24,00
Public Health	29.452	12,00
Nutritionist	58.904	24,00
Sanitarian	36.815	15,00
Technician	22.089	9,00

Production

	Year	Number of institutions or schools			Annual production capacity			Production per 100 000 population*		
		Doctors	Nurses	Midwives	Doctors	Nurses	Midwives	Doctors	Nurses	Midwives
Brunei	2010	1	1	1	17†	146	11	4	38	3
Singapore	2010	2	3	NA	350	1347	NA	8	32	NA
Malaysia	2008	21	99‡	NA	2000	8153‡	NA	8	34‡	NA
Thailand	2009	12	69	NA	1305	7555	NA	2	12	NA
Philippines	2007	39	517	268	2930	60199	3498	4	78	5
Indonesia	2008	52	682	465	5500	34 000	10 000	2	15	4
Vietnam	2008	14	14	ND	3520	860§	..	4	1§	..
Laos	2007	1	6	0	70¶	576¶	0	1	11	0
Cambodia	2008	2	6§	6§	290¶	410¶	398¶	3¶	4¶	4¶
Myanmar	2005	4	23	20	650¶	1200¶	1100¶	1	4	2

See webappendix pp 1–2 for data sources. NA=not applicable, since these countries no longer produced midwives. ND=no data. *Authors' calculation. †Only graduated from Bachelor of Health Science (Medicine) 3-year programme in Brunei; did not include students who graduated from partner universities to complete the Doctor of Medicine programme. ‡Data are for 2009. §Data are for nurses and midwives combined. ¶Public only.

Table 2: **Production capacity of doctors, nurses, and midwives in southeast Asian countries**

Source: Kanchanachitra et al. 2011)

Schools: Thai & Indonesia

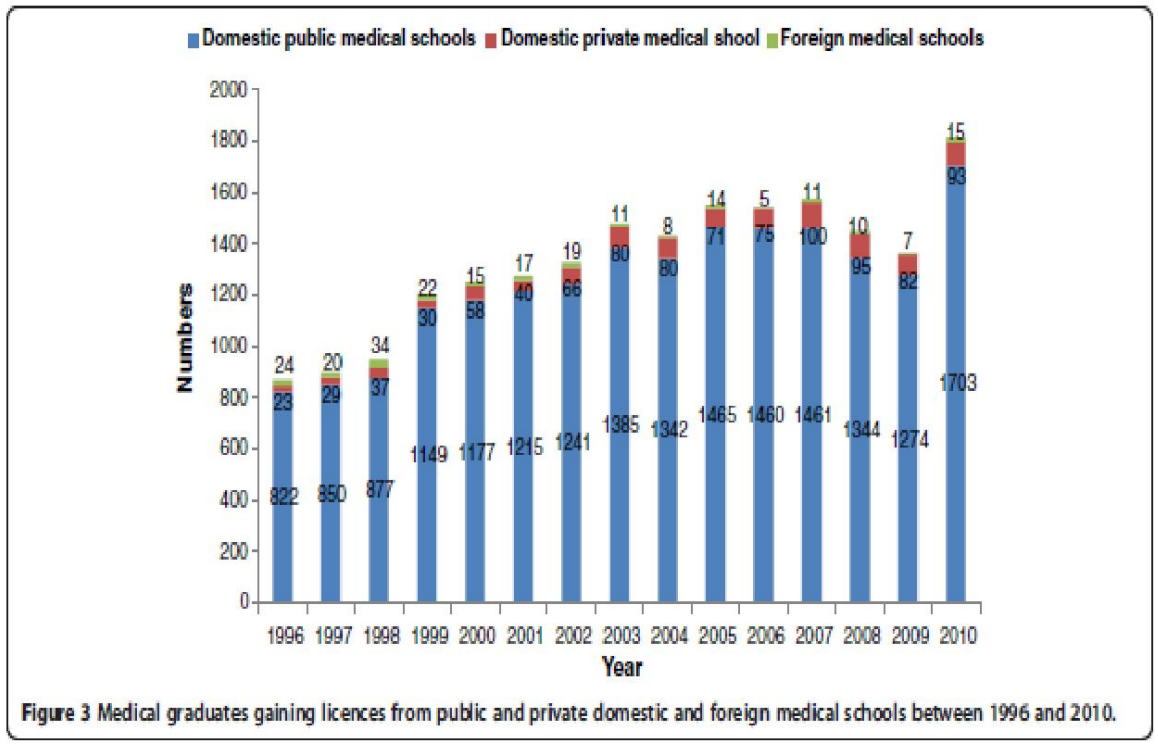
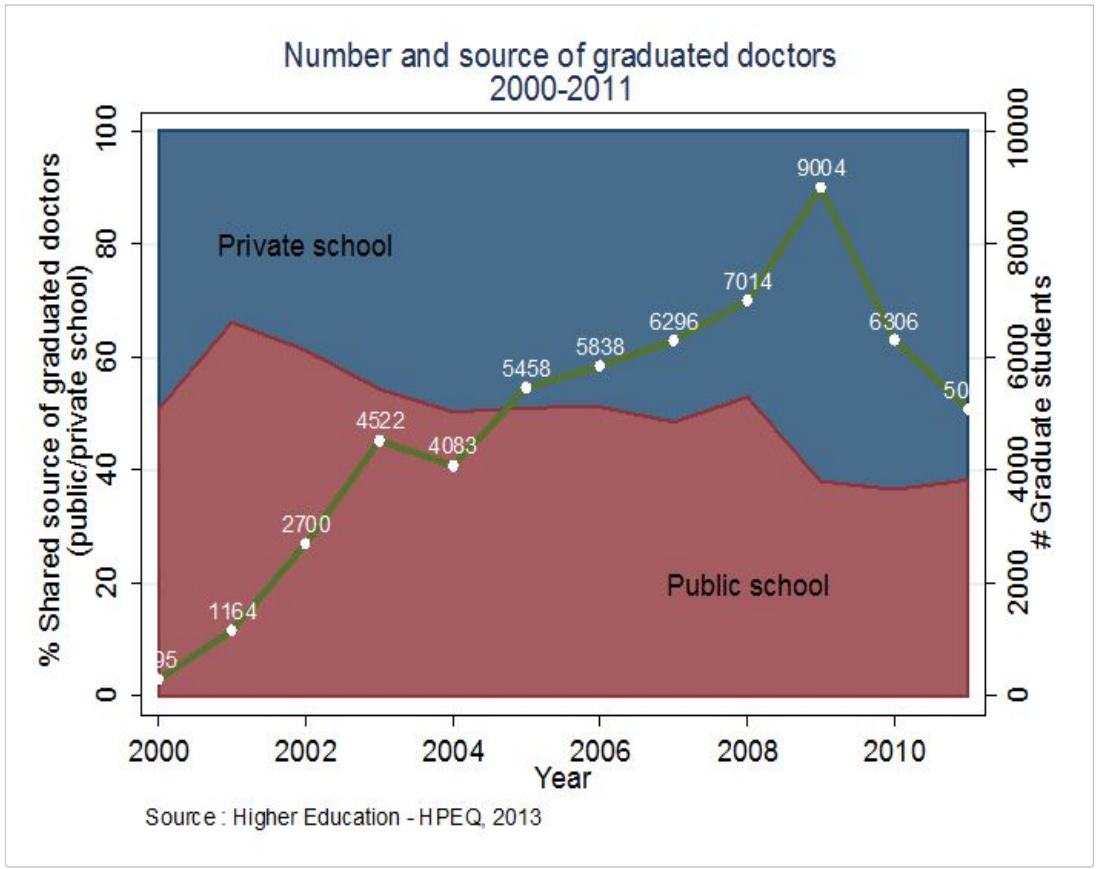


Figure 3 Medical graduates gaining licences from public and private domestic and foreign medical schools between 1996 and 2010.



Source : Higher Education - HPEQ, 2013

Quality of Production

Table 4 Rates of graduates who passed the National Licensing Examination for each medical school in Thailand

Medical school	Years of admission	Total admissions	Total graduates who passed the National Licensing Exam	Years of graduation	Rates of graduates who passed the National Licensing Exam
Vajira (VJ)	2001-2004	161	160	2007-2010	99.4
Khon Kaen (KK)	2001-2004	599	589	2007-2010	98.3
Chiang Mai (CMU)	2001-2004	664	655	2007-2010	98.6
Thammasat (TU)	2001-2004	348	330	2007-2010	94.8
Princess of Naradhiwas (PNU)	2007-2011	88	-	2013-2017	-
Naresuan (NSU)	2003-2004	292	279	2009-2010	95.5
Burapha (BU)	2007-2010	144	-	2013-2016	-
Chulalongkorn (CU)	2001-2004	869	846	2007-2010	97.4
Phayao (PU)	2011	15	-	2017	-
Phramongkutklao (PMK)	2001-2004	192	174	2007-2010	90.6
Mahasarakham (MSU)	2007-2010	249	-	2013-2016	-
Ramathibodi (RA)	2000-2004	505	494	2006-2010	97.8
Walailak (WA)	2008-2010	143	-	2014-2016	-
Srinakharinwirot (SWU)	2000-2003	390	376	2006-2009	96.4
Siriraj (SI)	2000-2003	798	791	2006-2009	99.1
Prince of Songkla (PSU)	2001-2003	583	553	2007-2009	94.9
Suranaree University of Technology (SUT)	2006-2010	240	-	2012-2016	-
Ubonratchathani (UBU)	2006-2010	134	-	2012-2016	-
Rangsit (RSU)*	2000-2004	456	445	2006-2010	97.6
Total		5,857	5,692		97.2

*Faculty of Medicine, Rangsit University, is the only private medical school in Thailand.
Source: Human Resources for Health Research and Development Office (HRDO), MoPH (2011).

	Nurse	Dentist	Doctors
Average	48.0	-	65.8
Highest	77.8	-	-
Lowest	13.3	-	-
Passing Grade	44.0	53.8	62.0
Passed (%)	63	76	71.3

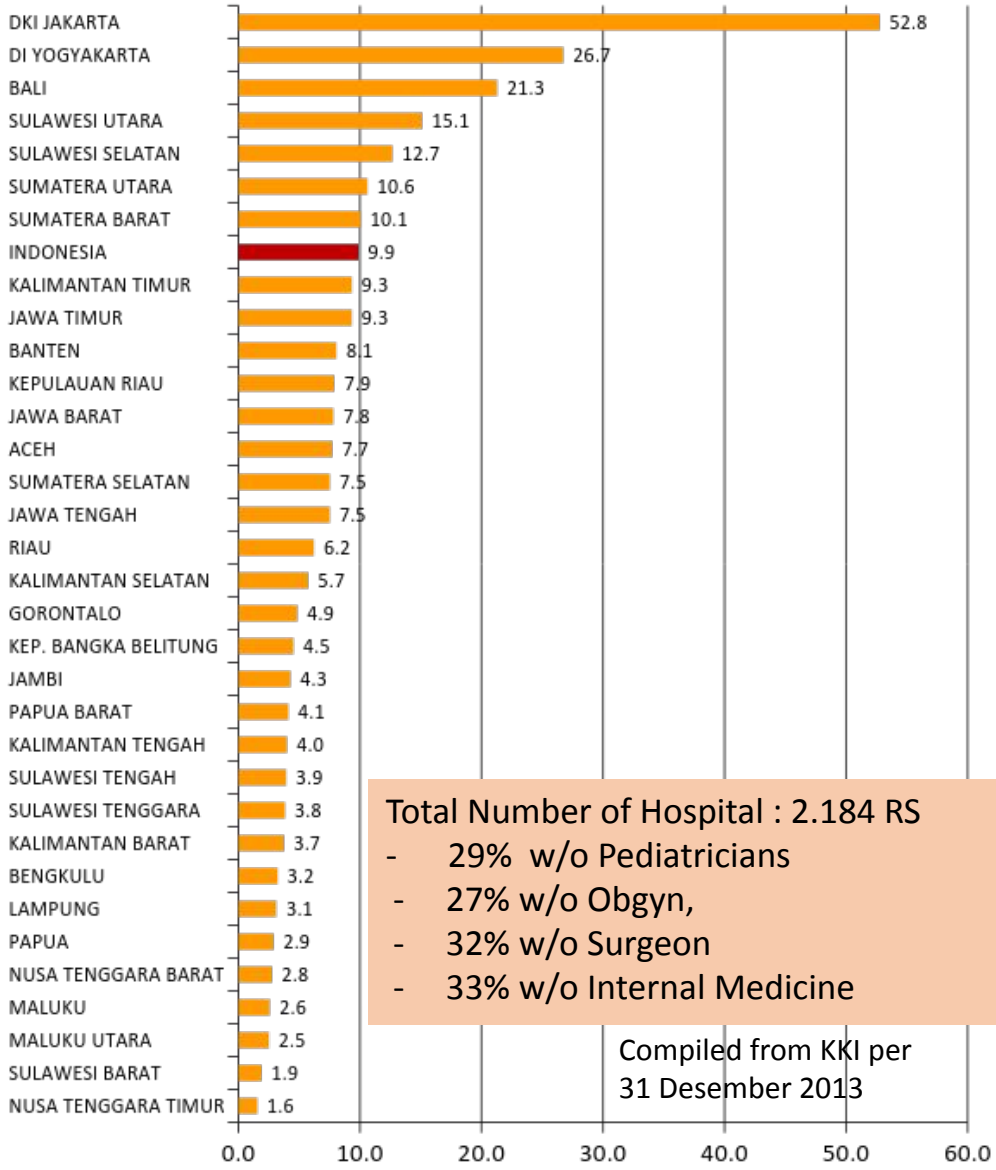
Sources: BPPSDM 2013

Quality Assurance

Accredited Professional Services	Licensing Conditions	Licensing Authorities
Medical Services	Full Registration Certificate and Annual Practising Certificate	Malaysia Medical Council
Dental Services	Annual Practising Certificate	Malaysia Dental Council
Pharmacy Services	Full Registration Certificate Licence A under Poisons Act, 1952	Pharmacy Board of Malaysia Licensing Officer

(Source: MIDA, 2012)

Challenges: Performance

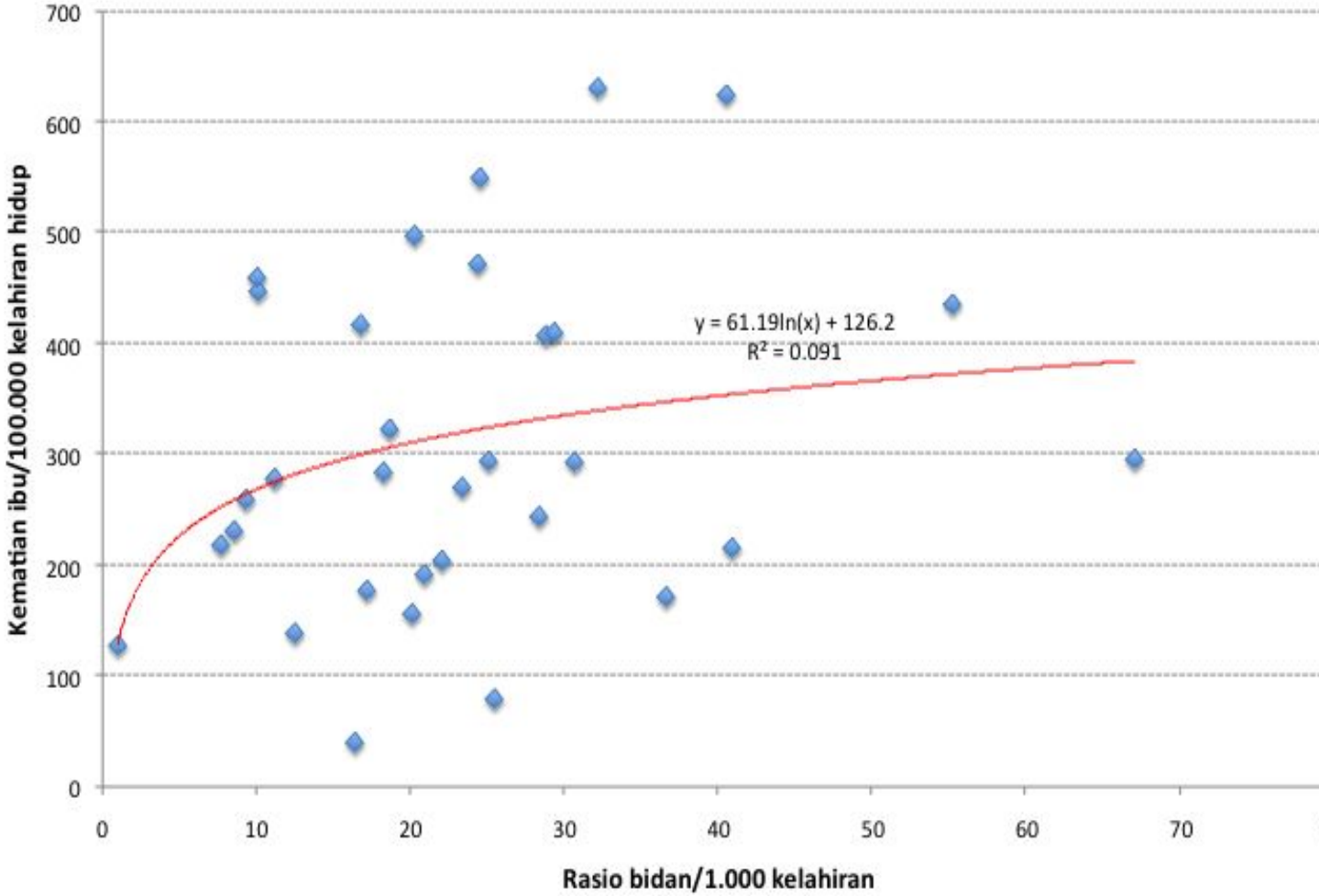


Total Number of Hospital : 2.184 RS

- 29% w/o Pediatricians
- 27% w/o Obgyn,
- 32% w/o Surgeon
- 33% w/o Internal Medicine

Compiled from KKI per 31 Desember 2013

Midwives' Performance



Sumber: SDKI 2007, Riskesdas 2010, Laporan rutin KIA 2010

Where are they?

Public vs Private Distribution

	Doctors per 1000 population	Doctors		Nurses per 1000 population	Nurses	
		Public (%)	Private (%)		Public (%)	Private (%)
Thailand	0.4 (2000)	78.4% (2005)	21.6% (2005)	2.8 (2000)	87.8% (2005)	12.2% (2005)
Singapore	1.5 (2003)	54.8% (2009)	45.2% (2009)	4.5 (2003)	68.5% (2009)	31.5% (2009)
Malaysia	0.7 (2002)	60.1% (2008)	39.9% (2008)	1.8 (2002)	71.2% (2008)	28.8% (2008)

	Hospitals		Beds		Beds per 1000 population	Primary care clinics	
	Public (%)	Private (%)	Public (%)	Private (%)		Public	Private
Thailand	67.9% (2007)	32.1% (2006)	69.3% (2006)	30.7% (2006)	2.2 (2002)	80.5% (2007)	19.5% (2006)
Singapore	63.6% (2009)	36.4% (2009)	80.6% (2009)	19.4% (2009)	3.2 (2007)	1.5% (2005)	98.5% (2005)
Malaysia	40.6% (2008)	59.4% (2008)	77.9% (2008)	22.1% (2008)	1.8 (2007)	32.1% (2008)	67.9% (2008)

Case of Indonesia

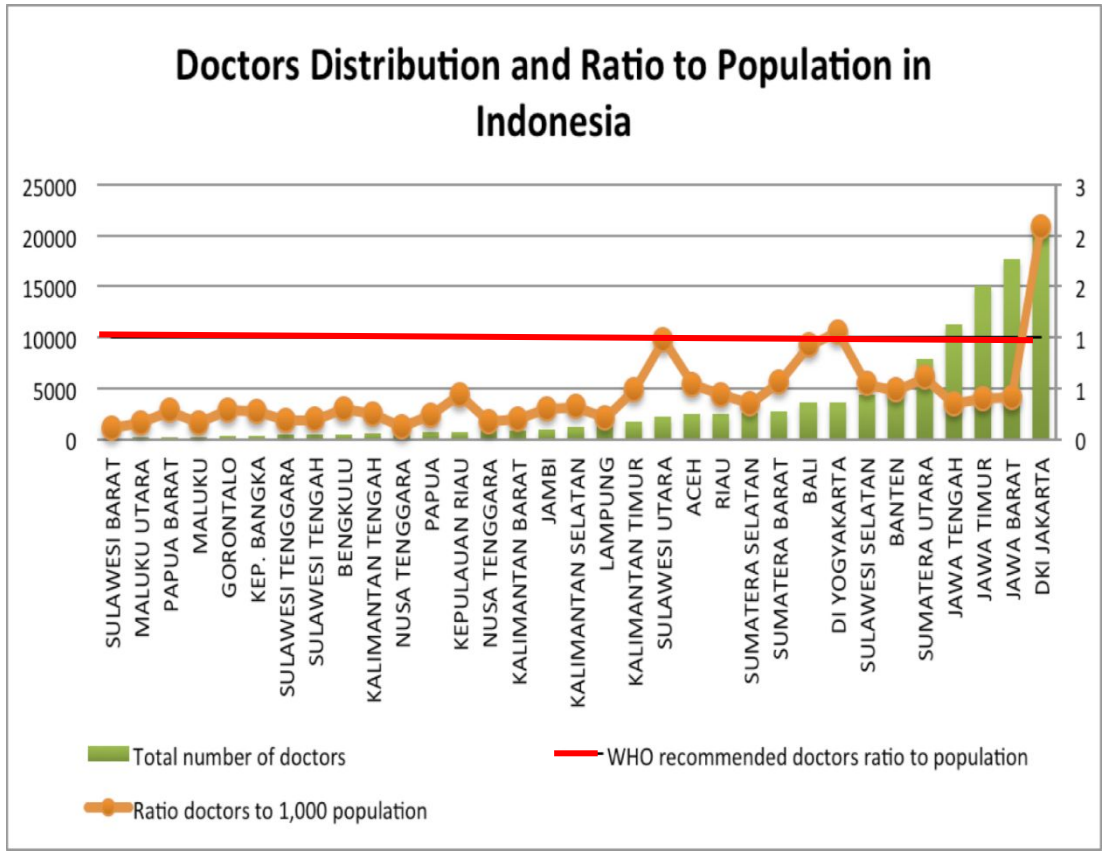
- Hospital need projection: 1 bed for 1000 population and calculated by province
- Indonesia is still lacking of 100.0000 bed in national level, 34.000 bed in district level
- Growth prediction (national): 5%, bed growth: 4%, growth of hospital based on population: 1,2%, by 2020 Indonesia has sufficient hospital
- Private is dominant and there are more 65% of private hospital out of 2300 hospital (2014)

Source: Herberholz & Supakankunti, 2012

Source of Income for GP	percent of total income
Private incentive (Private hospital)	29.0
Private practice	19.5
Fixed salary as civil servant	19.4
Private salary (private hospital)	9.0
Incentive (public hospital)	7.2
Health insurance	3.9
Lecturing fee	2.2
Incentive from pharmaceutical industry, lab, etc	1.3
Insurance for workers	0.3
Other	8.3

Source: Meliala et al. 2013

Geographical Distribution



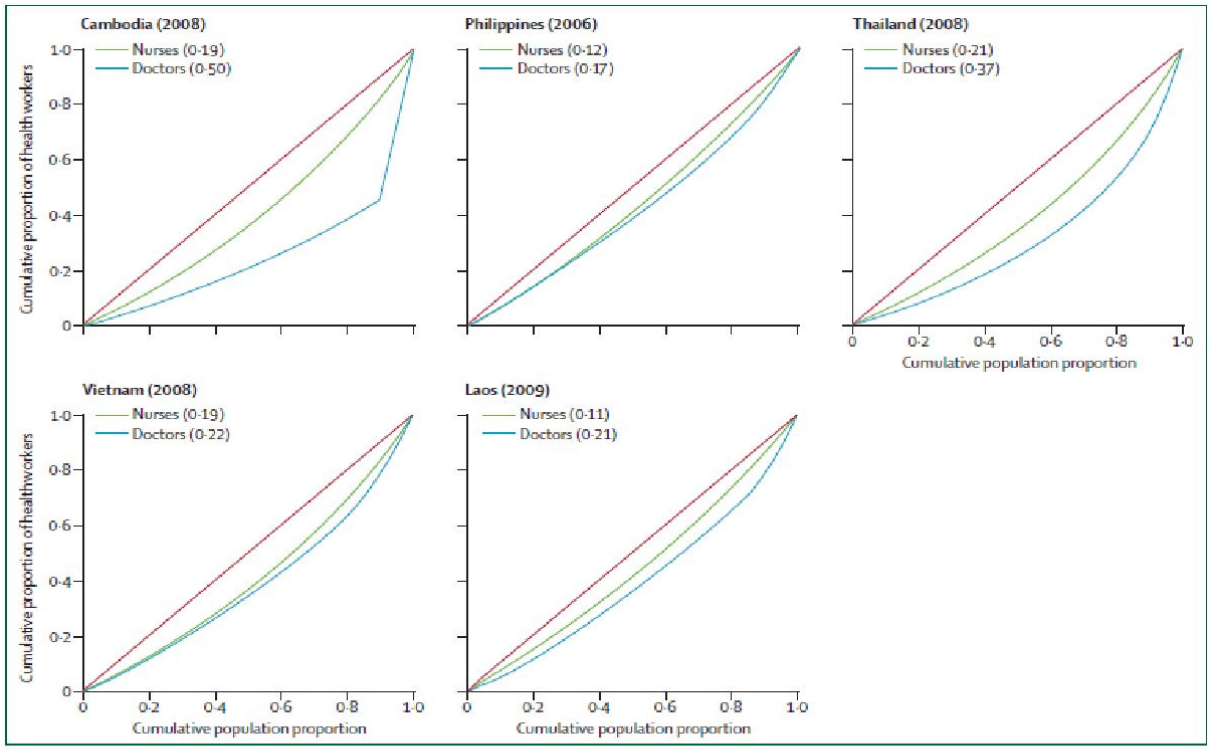
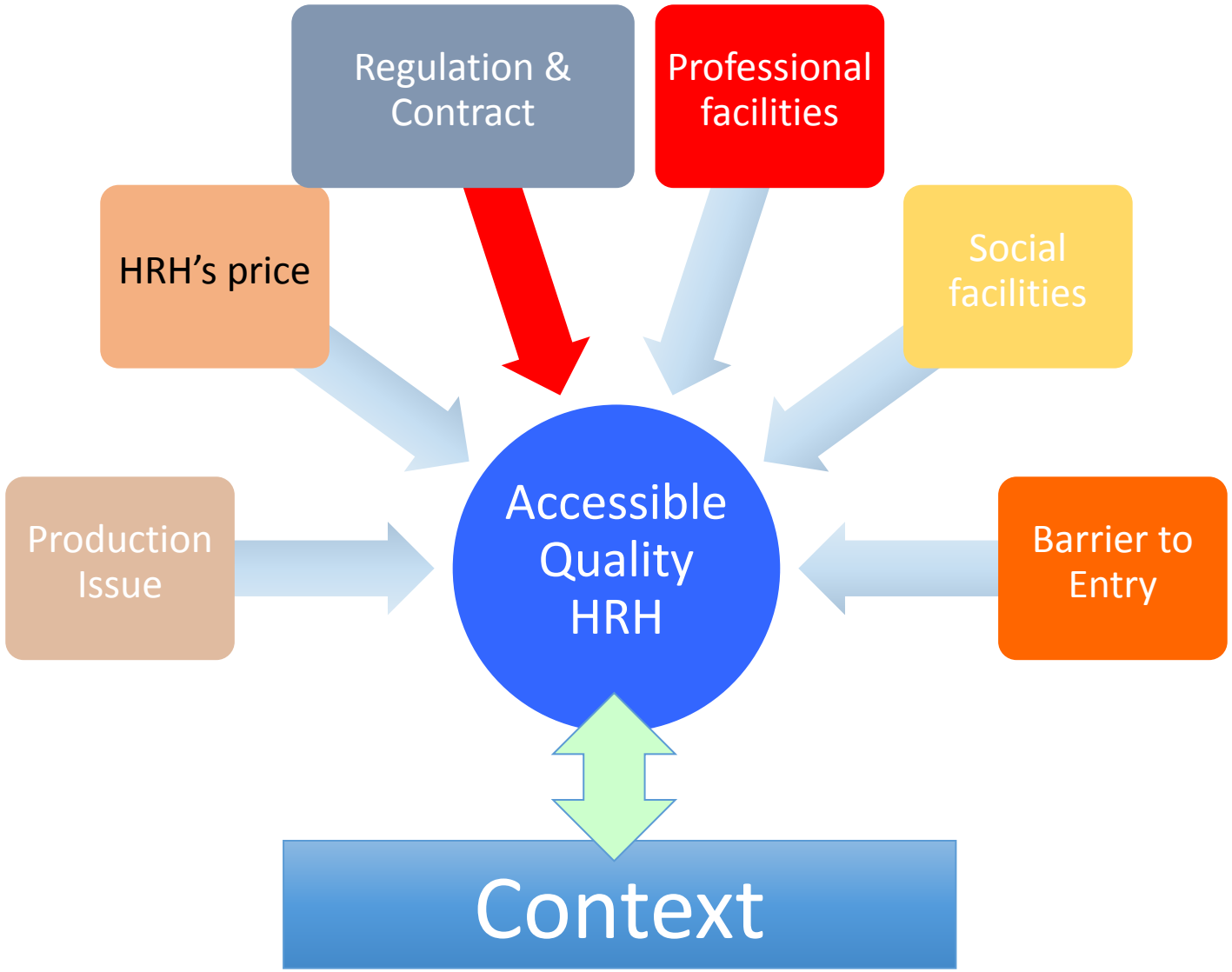
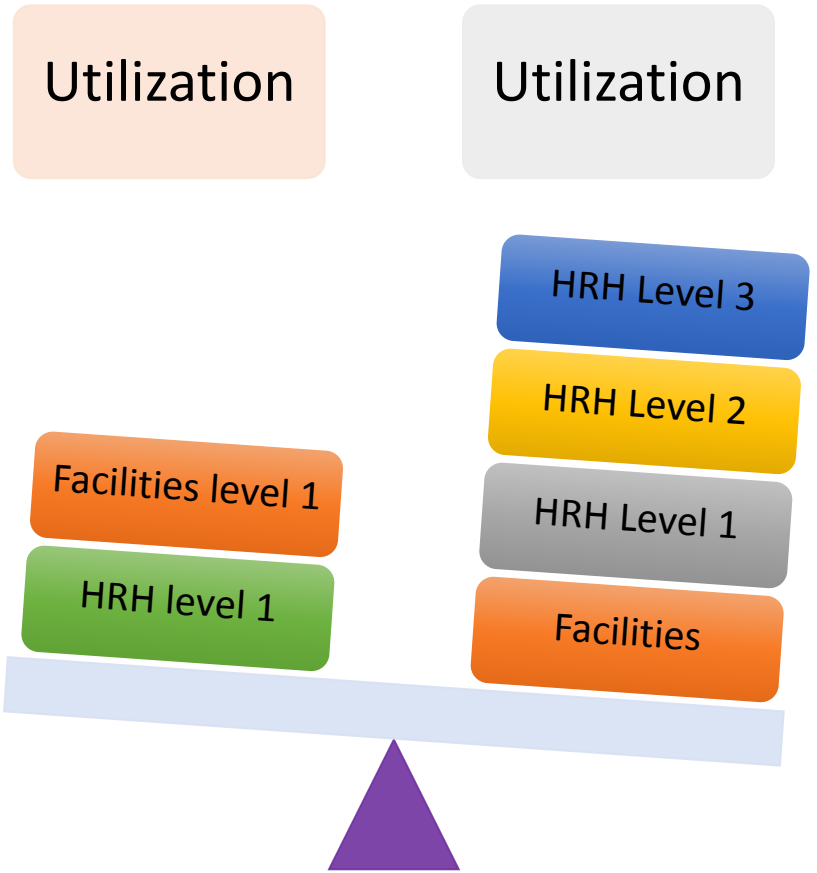


Figure 1: **Subnational distributions of doctors and nurses in selected southeast Asian countries**
Greater deviation of the Lorenz curve from the red diagonal line (line of equality) shows higher inequality (which is reflected in a higher Gini coefficient, with zero indicating perfect equality). Green lines show the distribution of nurses and blue lines show distribution of doctors. Gini coefficients are shown in parentheses in the key of each figure.

(Source: Kanchanachitra et al. 2011)

Challenges in Distributing HRH





Equity Issues

Medical Tourism: Challenge or Opportunity?

Medical Tourism

	Density of doctors, nurses, and midwives per 1000 population	Cross-border trade (mode 1)		Consumption abroad (mode 2)		Commercial presence (mode 3)		Temporary movement of natural persons (mode 4)	
		Import	Export	Import	Export	Import	Export	Import	Export
Brunei	7·2	0	0	+	0	0	0	+++	0
Singapore	5·9	+	0	+	+++	+	++++	++++	+
Malaysia	2·5	0	0	+	++	+	+	++	+
Thailand	2·7	0	0	+	++++	++	++	0	+
Philippines	7·3	0	++	+	+	+	0	0	++++
Indonesia	1·9	0	0	+	+	+	0	0	++
Vietnam	1·4	0	0	+	+	++	0	0	0
Laos	1·2	0	0	+	0	0	0	0	0
Cambodia	1·1	0	0	+	0	+	0	0	0
Myanmar	1·4	0	0						

The greater the number of + in each cell, the greate
and 32.

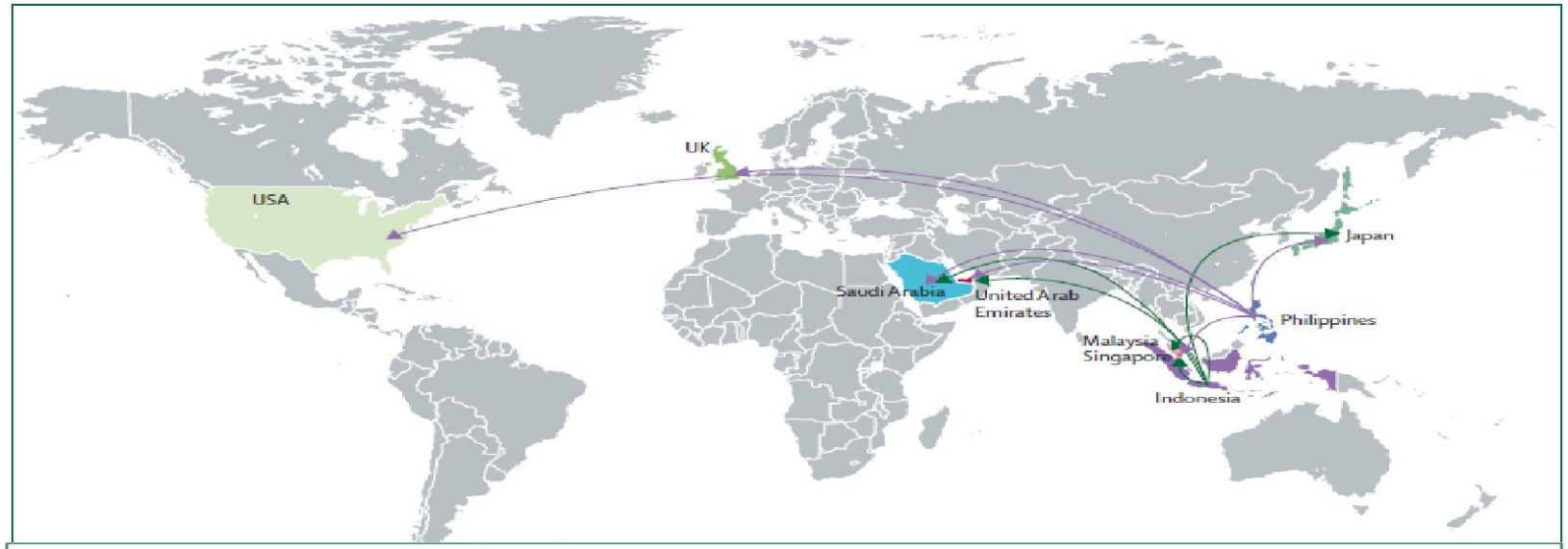
Table 3: Level of engagement in trade in heal

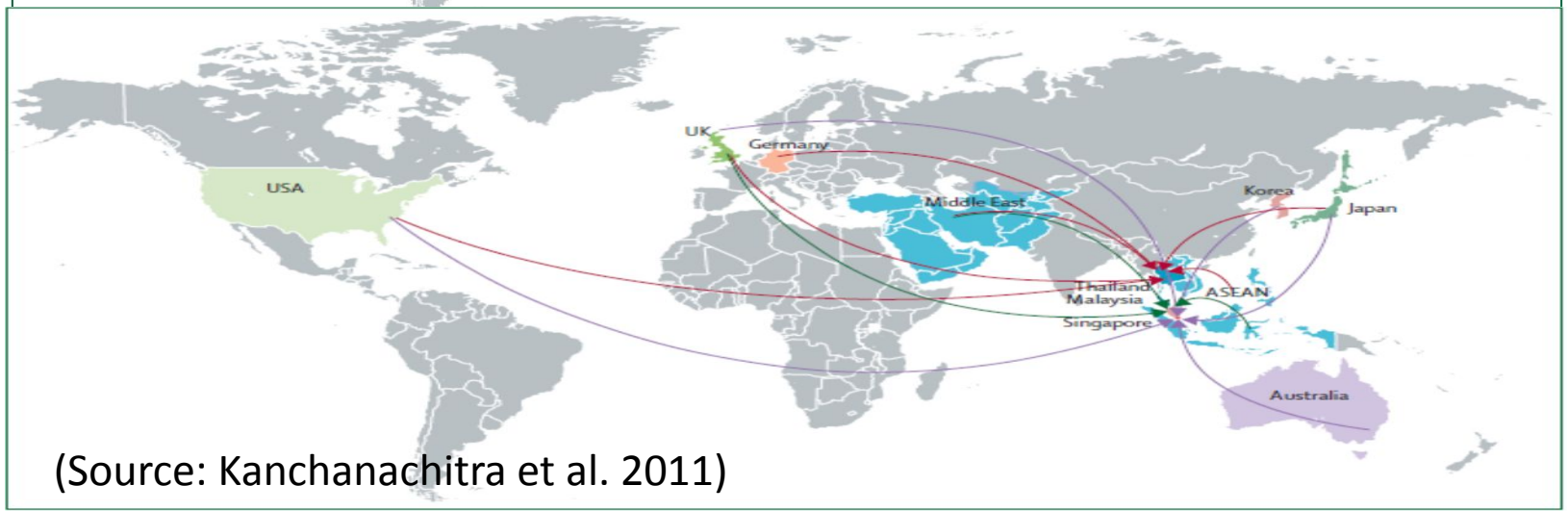
(Source: Kanchanachitra et al. 2011)

	Estimated earnings	No. foreign patients	Origin of patients (in order of volume)	Specialty
Thailand (2006)	Baht 36 billion (US$ 1.1 billion)	1.4 million	Japan, USA, South Asia, UK, Middle East, ASEAN countries	Cosmetic and sex change surgery
Singapore (2007)	S$ 1.7 billion (US$ 1.2 billion)	571 000	Indonesia, Malaysia, Middle East	Cardiac and neuro surgery, joint replacements, liver transplants
Malaysia (2007)	253.84 million MYR (US$78 million)	341 288	Indonesia, Singapore, Japan, India, Europe	Cardiac and cosmetic surgery

Source: Herberholz & Supakankunti, 2012

Flow of Doctors, Nurse & Patients





(Source: Kanchanachitra et al. 2011)

	Number by country of birth (2000)		Number by country of training (2004)
	Nurse	Doctor	Doctor
Brunei	129	94	42
Singapore	1913	1356	678
Malaysia	7569	4679	2552
Thailand	3050	1390	633
Philippines	110774	15859	10181
Indonesia	3449	2773	480
Vietnam	5778	7591	2578
Laos	867	331	36
Cambodia	1119	669	76
Myanmar	418	1725	782

Data are from references 43 and 44. OECD=Organisation for Economic Co-operation and Development.

Table 4: Number of doctors and nurses from southeast Asia working in OECD countries, by country of birth and country of training

Brain Drain Issues

Export of Doctors

Exporters		Popular Destination	
Phillipines, Indonesia	To southeast Asia, Japan, Taiwan, middle east, UK, US	Singapore	1000 foreign-trained doctors recruited (2009)
Malaysia	To Singapore, OECD, Middle east	Malaysia	-

Density of HRH (2.28)	Country
High	Singapore, Brunei, Phillipine
Low	Thailand, Malaysia
Below 2.28	Indonesia, Laos, Vietnam, Cambodia, Myanmar.

"Although external brain drain is more pronounced in other ASEAN countries like the Philippines and Indonesia, Malaysia like other countries has put measures in place to reverse the external brain drain, which might be done on the premise of medial tourism expansion" (Smith, Álvarez and Chanda 2011).

Source: Pocock & Phua, 2011

(Source: Kanchanachitra et al. 2011)

Brain Drain from Public to Private

- Case of Thai:
  - To provide services for international patients, highly specialised staff such as cardiologists, neurologists and neurosurgeons, intervention radiologists, and oncologists are needed.
  - This need increases pressure on medical schools in particular because of a shortage of teaching staff (for example more than 300 specialists resigning to join private hospitals during 2005–06)
- Case of Malaysia:
  - the argument that medical tourism could actually reduce external brain drain, but notes for the case of Malaysia that "*this is beneficial for the country as a whole only if expertise in the private sector is accessible to the population at large, which is not the case in the current dual system of healthcare*" (Chee 2008: 2152)

Source: Pocock & Phua, 2011

(Source: Kanchanachitra et al. 2011)

HRM Challenges

- Additional doctors needed to treat international patients: 176-303 (9-12% of additional doctors required by Thai health system and 23-24% required by Thai patients)
- Indonesia, Malaysia: Shortage of highly specialized medical doctor
- According to Kanchanachitra, et al. (2011), Singapore is the major importer of doctors in the Southeast Asian region, with twothirds of doctors having been educated abroad about 30 per cent being foreigners.
- Health system, mainly the financing component, is likely to having a dual effect on HRH management

- Given the Light of Remaining Burden of Disease:
  - Communicable disease
  - Life-style related disease
  - Aging-related disease
  - New emerging disease
  - Classical disease

Conclusion

- The evidence shows there is a double burden of human resource management in South East Asia:
  - First is the front-yard issue of global trend of health care mobility
  - Second is the backyard issue on the distribution and quality of human resource

- This is a challenge for policy maker and researcher to address both issues at the same time

Terima Kasih