1984 25 years 2009

We've used ICT in health care for more than 25 years in Thailand

We've used Technology

Hardware

We've used Software

Technology

System Management solutions (a complete Hospital Management software)

This system solution is for all hospitals, Nursing Homes & Multi Super specialty Hospital. It manages all necessary information's & input-out of any Level organizations. It's come with deferent Module which can be implementing in all or as separate module.

Reception management
- All general enquiries.
- Room/bed reservation
- Patient feedback
- Location & availability of consultants

OPD/IPD billing
- Patient registration
- Insurance, TPA, Panel, cash etc
- Cash collection report
- Consultant share & Cuts reports

O.T. Management
- Scheduling display
- Consumable consumption report
- Surgery recording facility**

Laboratory management
- Facility to take test from OPD, IPD, Direct
- Transfer billing to patient data
- Panel wise rates & reports
- Cash collection report

Pharmacy Management
- Facility to take test from OPD, IPD, Direct
- Transfer billing to patient data
- Panel wise rates & reports
- Cash collection report

Departmental Stocks
- Department wise Inventory
- Assessment of O.K & faulty reports

Admin Management
- In time & out Time for employee.
- Payroll, salary calculation,
- over time calculations, TDS
- PF, Profitability status etc.

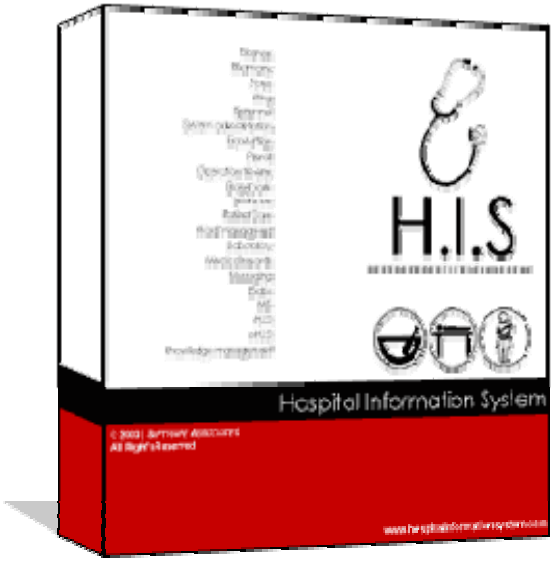
Prescription Reports
- Consultant wise prescription with masters
- Patient Module for inbuilt report formats Patient

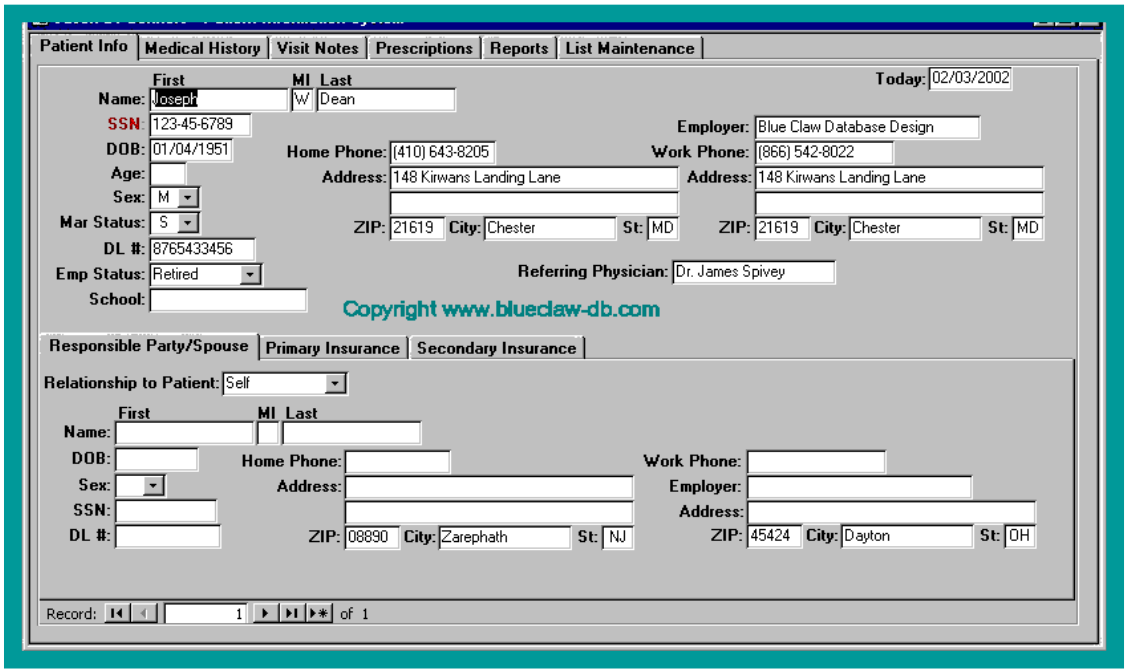
Reports
- IPD/OPD cash collection
- Share report
- Daily patient report
- Date- Bill will cash Collection
- Panel wise collection

Nursing roster
1. Manages duty wise staff information
2. Gives Medicine details of All IPD
3. Organizes Schedule for Nursing

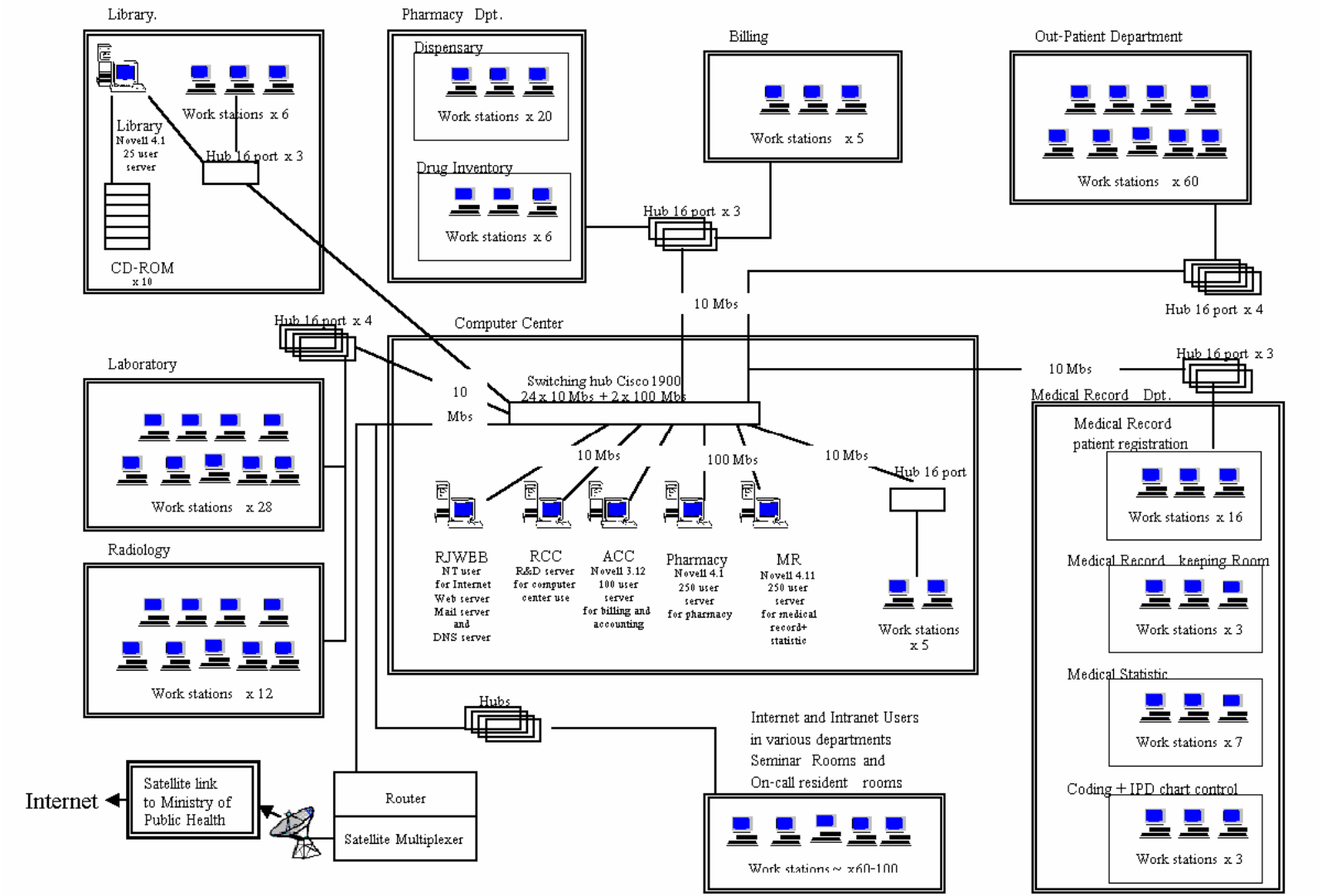
Soft Imaging & Medical Solution (Pvt) Ltd.
401-402, Gupta Complex old Rohtak Road Inder lok Delhi -110035
Ph:- 011-32553373, 9811857373, Fax:- 011-23659850 , 23652525
E-mail:- softimaging@rediffmail.com
Visit us –www.softimagingindia.com

Authorized partner

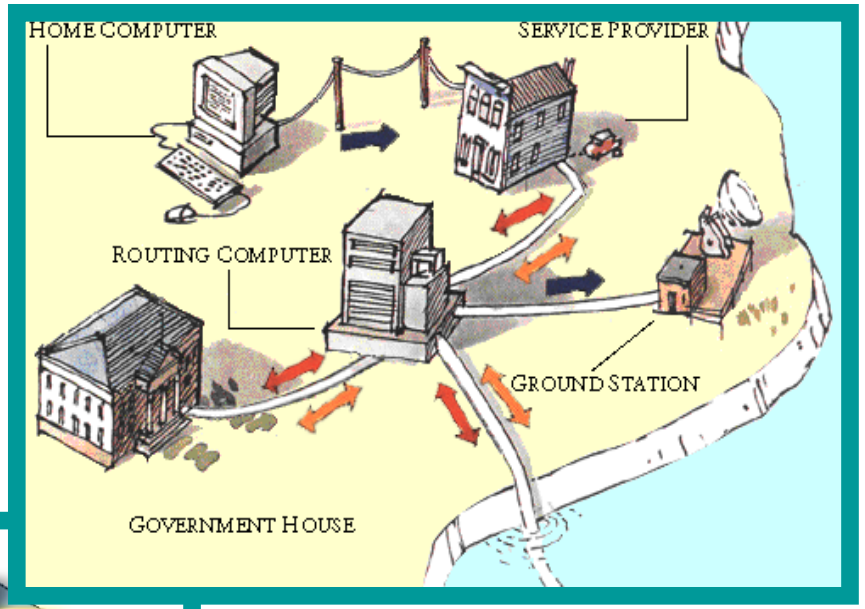




We've used Technology Network



We've developed Communication



But ……

Up to now

We still lack of good

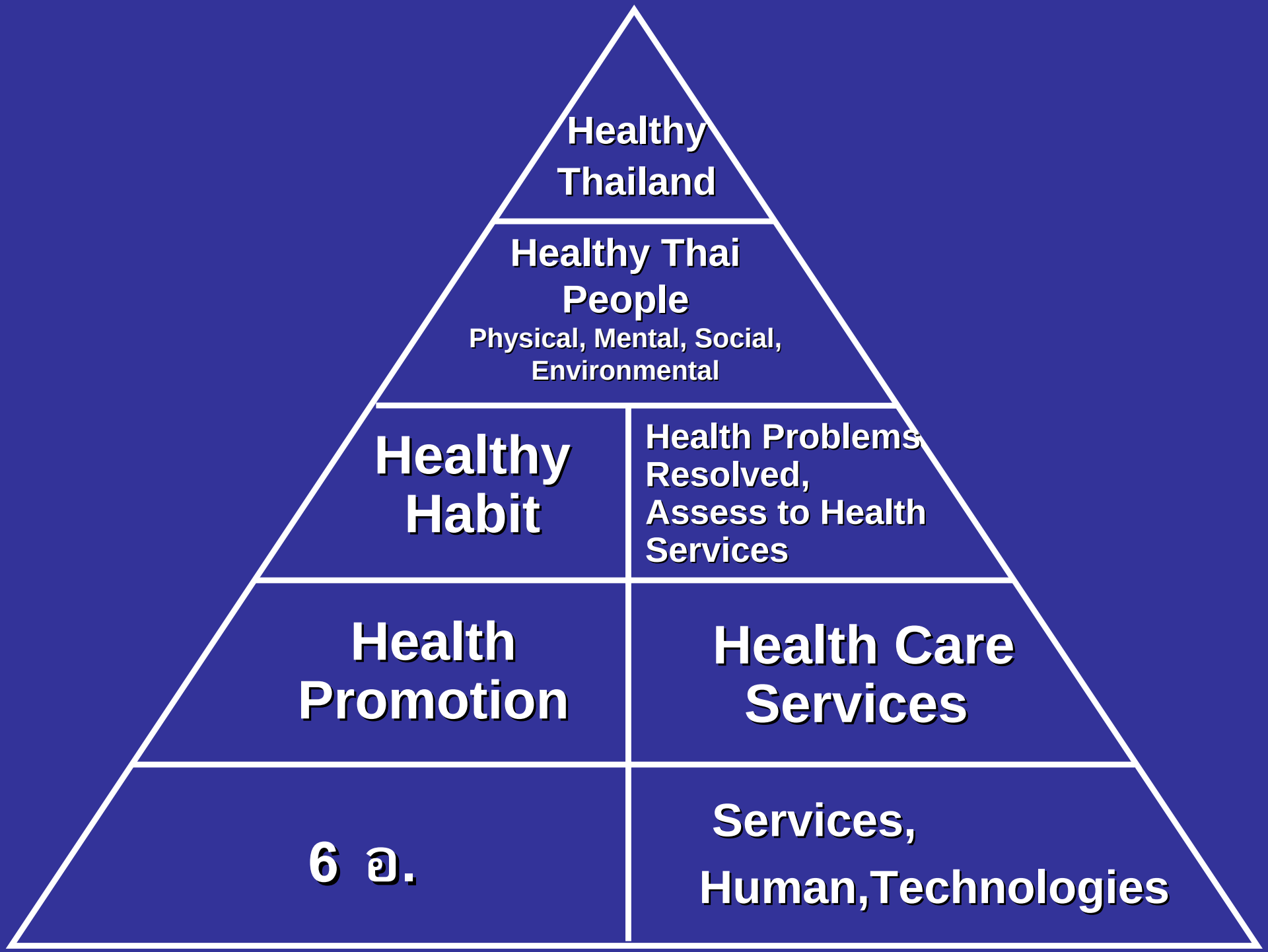
Information

esp. for policy formulation

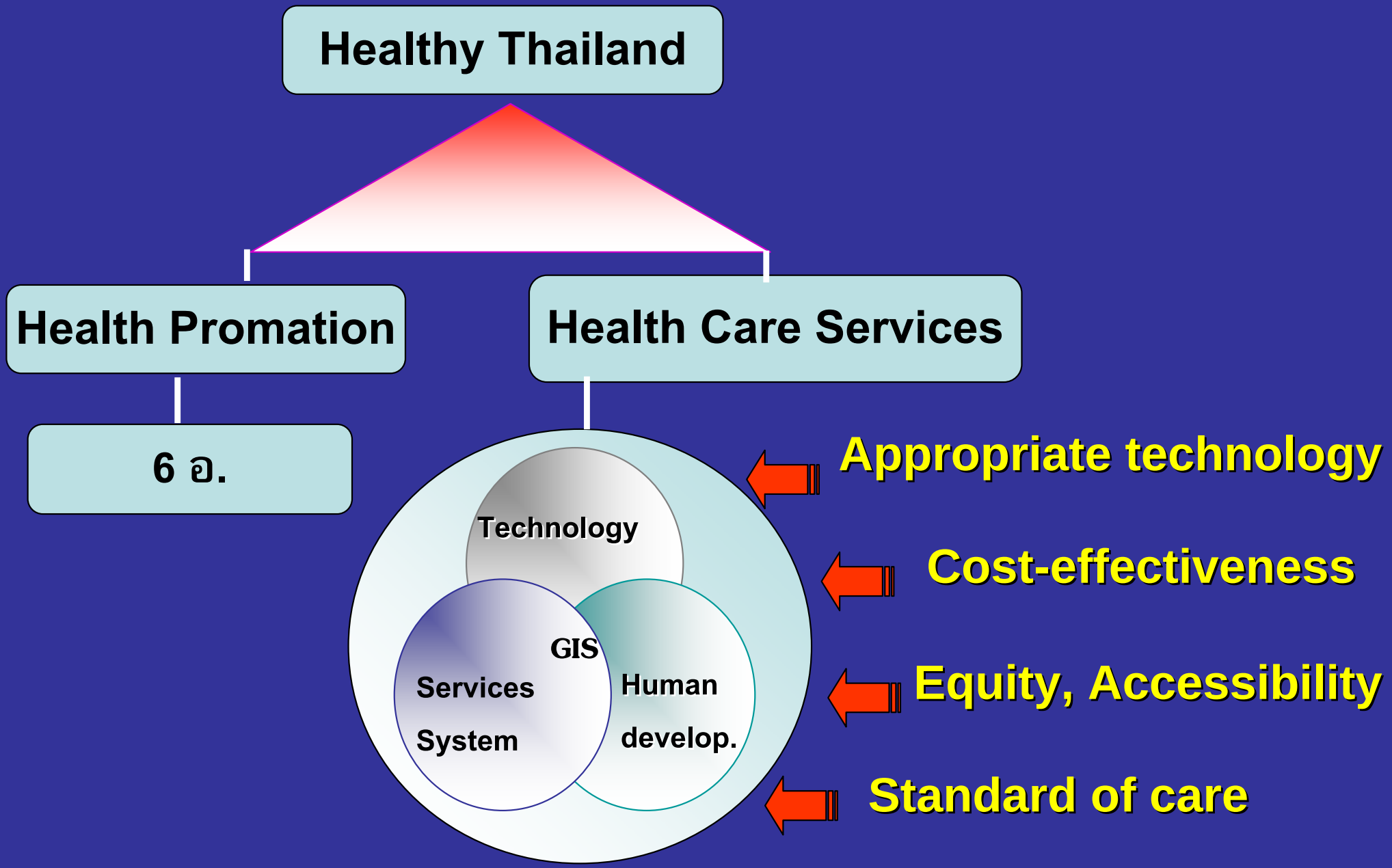
Building up Health Information for Policy Formulation: A formidable challenges

Choosna Makarasara
Bureau of Medical Technical Development
Department of Medical Services

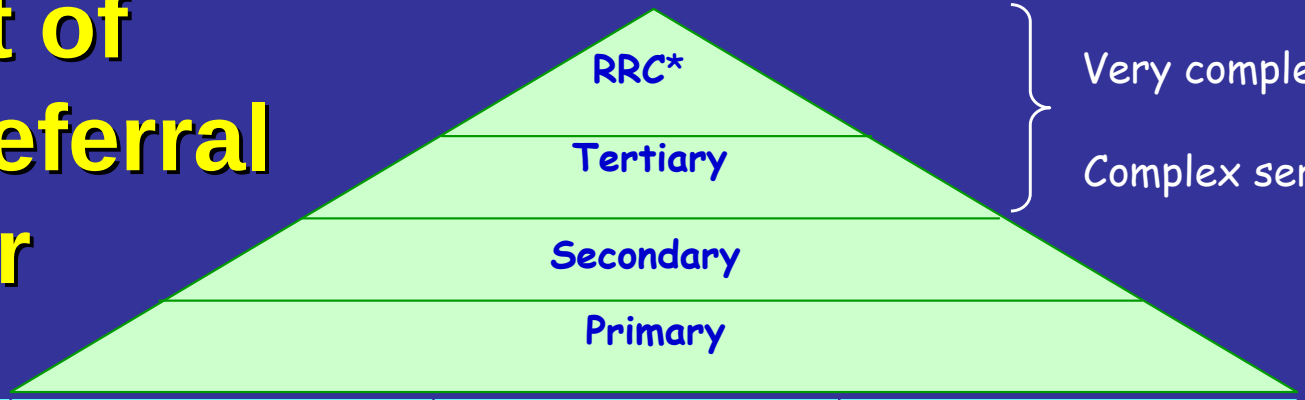
What Information is needed for Policy Formulation ?


Healthy Thailand
Healthy Thai People
Physical, Mental, Social, Environmental
Healthy Habit
Health Problems Resolved, Assess to Health Services
Health Promotion
Health Care Services
6 อ.
Services, Human,Technologies

Health System Reform



Concept of Regional Referral Center



Issue \ Strategy	service	HRM	technology
Agenda	Prioritization / Multi-approach	Competency development	Appropriate technology
Needs Assessment	DALY / Death rate / Morbidity / Epidemiology	Workload	New investment / distribution
Database	Facility mapping	Performance base data	Technology registration / Inventory
Networking	Referral system Financial system	Training	Quality / Standard
Benchmarking	ISO / HA / TQA / Service level (e.g. trauma center)		
	Institute / National / International	Competency / Performance	Utilization management
Academic interaction	System reseacrh / R&D	Training / HRD	TA / CPG / R&D

Information needed to develop Health services policy

- Epidemiology
- Burden of Disease
- Health Economics
- Technology Assessment
- Health Care Resources
- Quality of Care

1. Epidemiology

- Prevalence
- Incidence
- Cause and Risk Factors
- Mortality Rate
- Etc.

ABOUT HIGH BLOOD PRESSURE

- Almost half of Americans 45 or older have high blood pressure.
- Hypertension doubles one's risk of stroke.
- Nearly one third of adults with high blood pressure do not know they have it, increasing the risk of related complications and diseases.
- High blood pressure was listed as a primary or contributing cause of death in approximately 278,000 deaths in the United States in 2003
- Hypertension decreases life expectancy for men 5.1 years in men and women 4.9 years

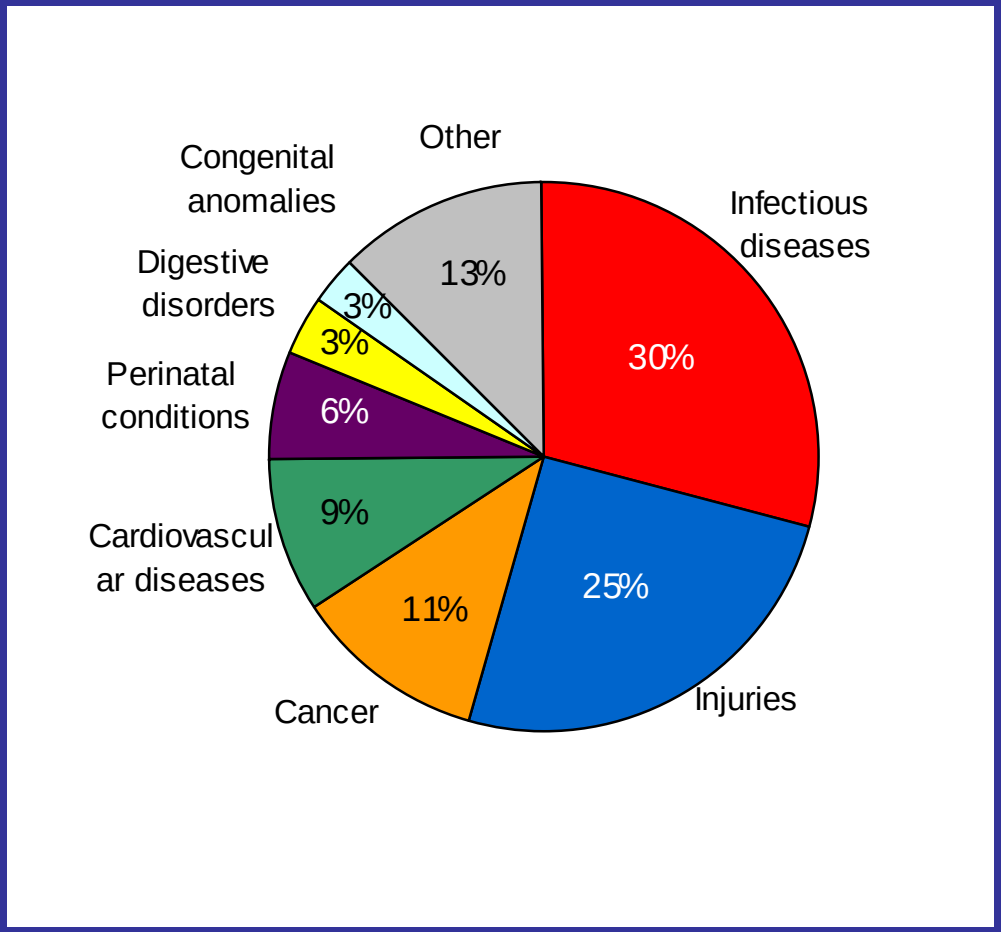
2. Burden of Diseases

DALY = YLL + YLD

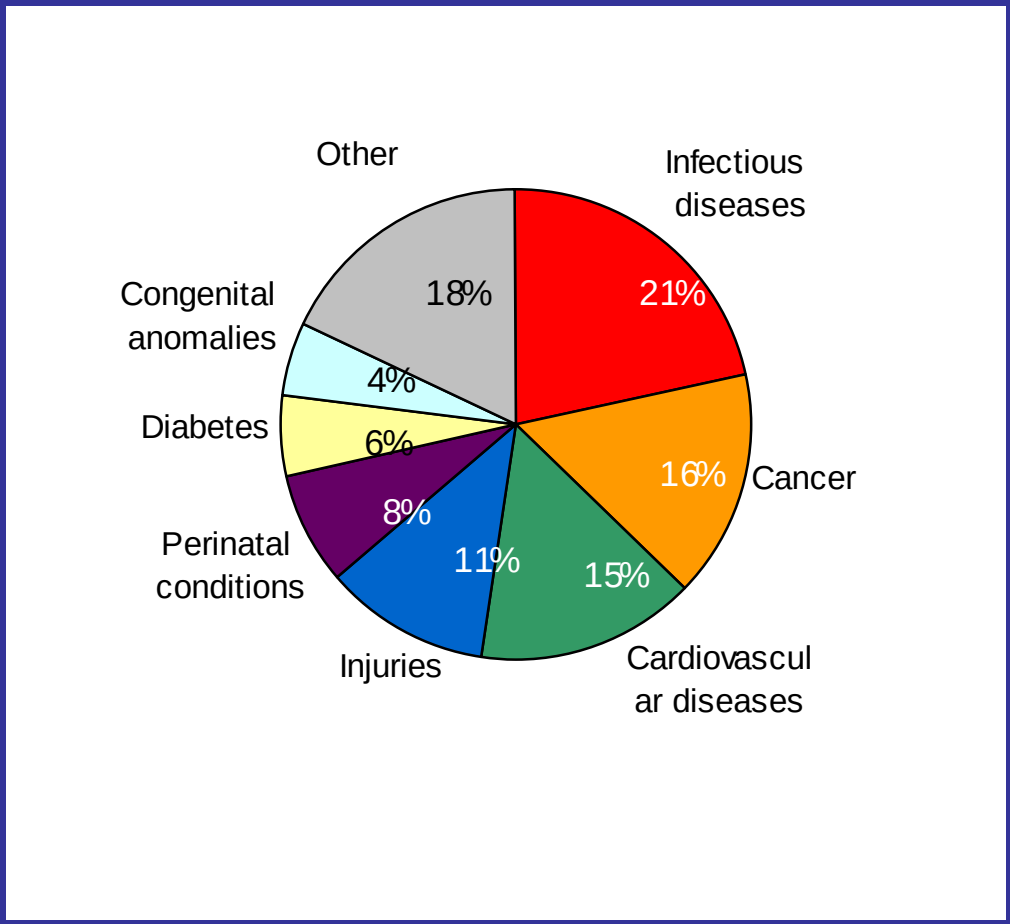
YLL = Year Life Loss

YLD = Year Living with Disability

The Mortality Burden in Years of Life Lost (YLLs) by Sex and Broad Disease Grouping, Thailand 1999

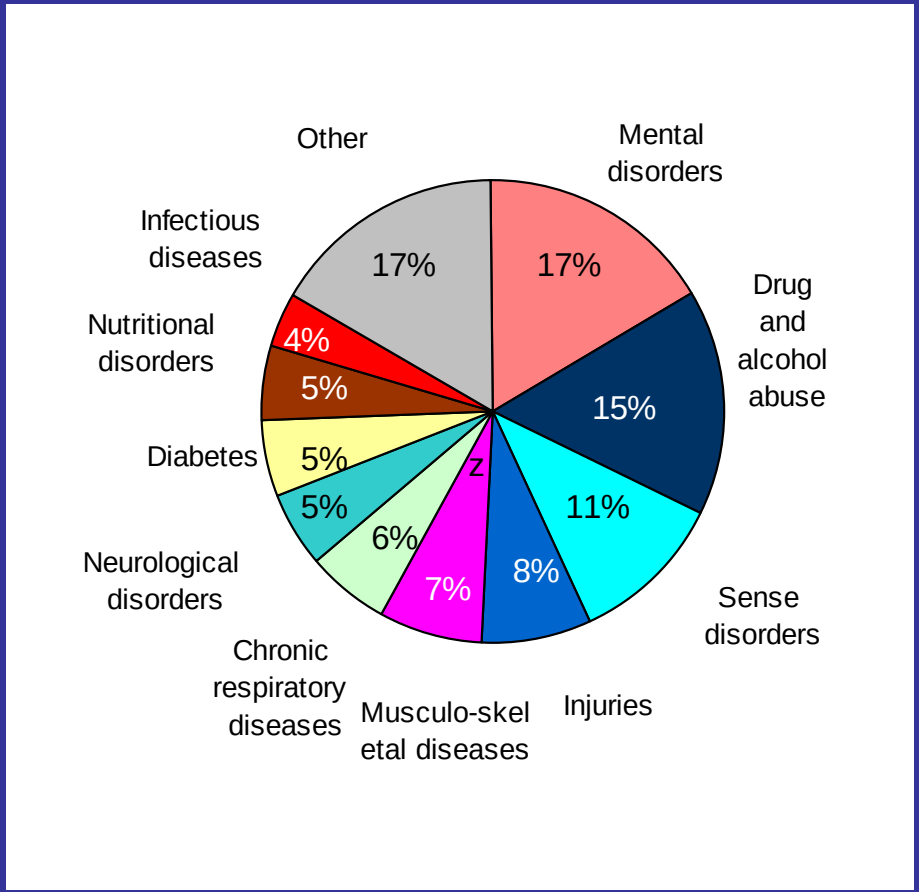


Males: 4.3 millions of YLLs

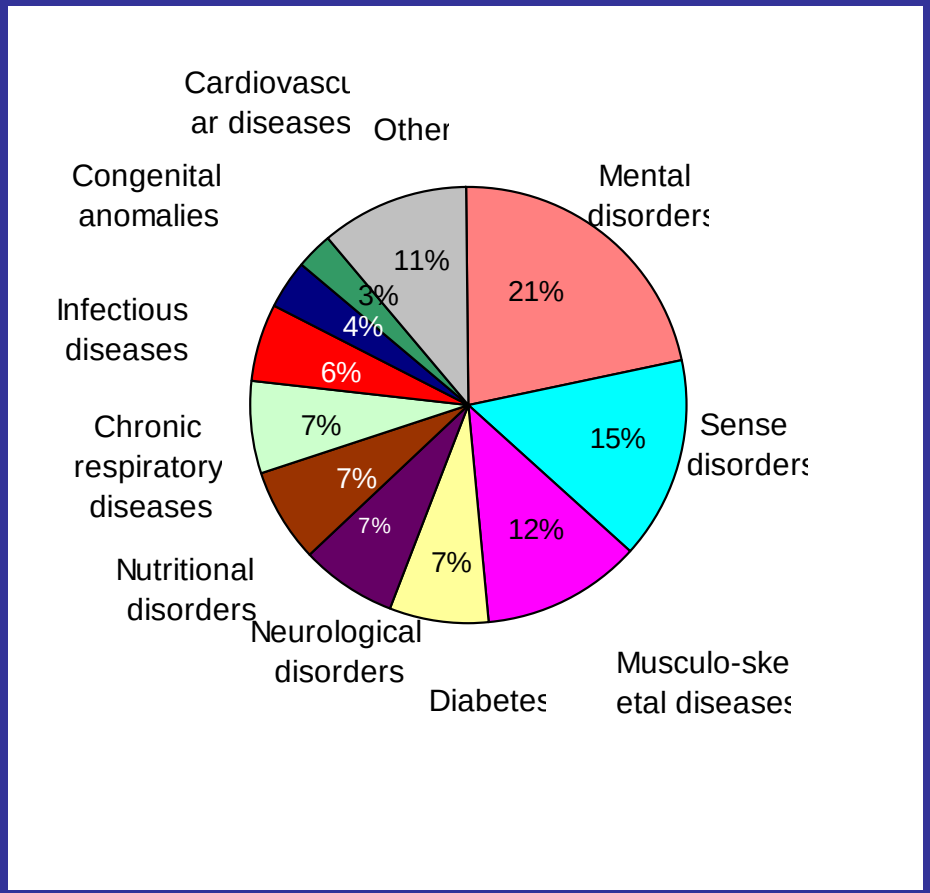


females: 2.9 millions of YLLs

The morbidity burden in Year Lived with Disability (YLDs) by sex and disease grouping, in Thailand 1999

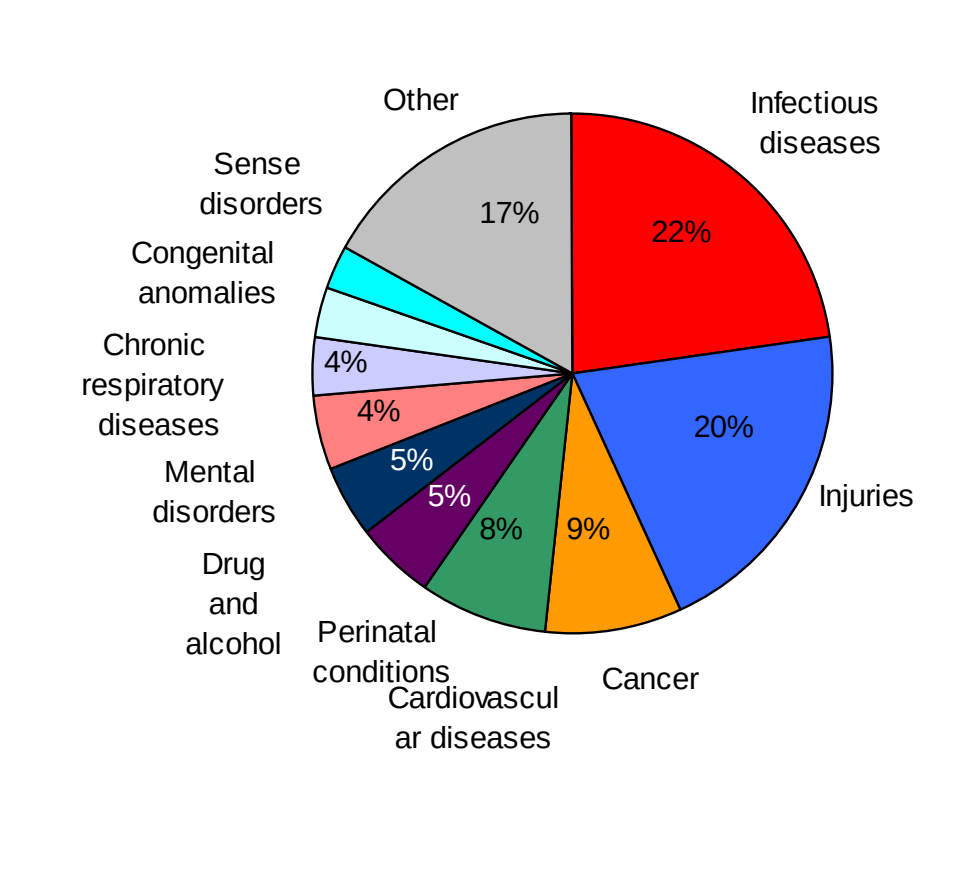


Males: 1.5 millions of YLDs

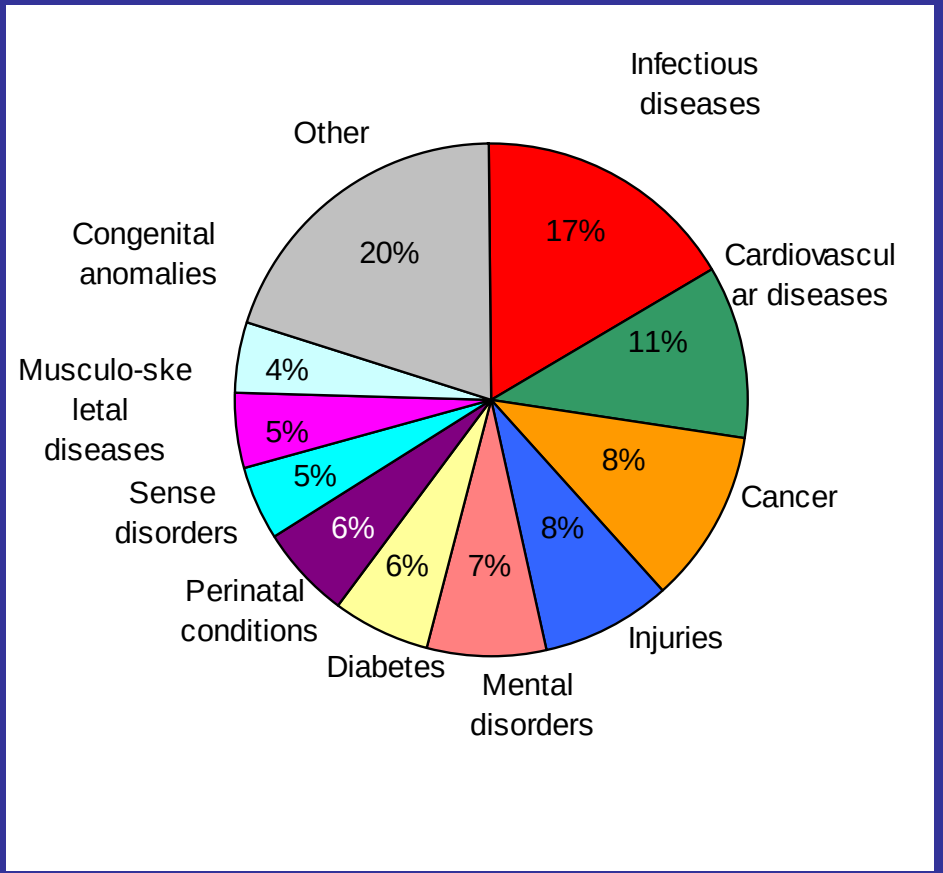


females: 1.4 millions of YLDs

The morbidity burden in Disability Adjusted Life Year (DALYs) by sex and disease grouping, in Thailand 1999



Males: 5.9 millions of YLDs



females: 4.3 millions of YLDs

Burden from Major Neurological Diseases

Condition	Global total			East Asia and the Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa	High-income countries
	Both sexes	Males	Females							
AD and other dementias	17,108	6,092	11,016	4,110	1,612	1,215	292	1,955	450	7,468
Epilepsy	6,223	3,301	2,922	1,303	354	737	248	1,741	1,373	464
PD	2,325	1,124	1,202	435	228	90	81	303	100	1,086
Cerebrovascular disease	72,024	35,482	36,542	25,832	12,616	3,936	1,948	13,184	5,125	9,354

Source: Mathers and others 2006.

3. Health Economics

- Economic burden of diseases

3. Health Economics

The Future Cost of Chronic Disease

- Between 2000 and 2030, the number of Americans with one or more chronic conditions will increase by 37%—46 million people.

  Partnership for Solutions 2004, *Chronic Conditions: Making the case for ongoing care*

- By 2020, 81 million people will have two or more chronic conditions.

  Partnership for Solutions 2002, *Chronic Conditions: Making the case for ongoing care*

- By 2030, half of the U.S. population will have one or more chronic conditions.

  Partnership for Solutions 2004, *Chronic Conditions: Making the case for ongoing care*

3. Health Economics

The Future Cost of Chronic Disease

- It is projected that by 2020 the U.S. will spend $685 billion a year in direct medical costs for persons with chronic diseases, and by 2050—$906 billion.

  Hoffman and Rice 1996, *Chronic Care in America*

- By 2030, 20% of the population will be people age 65 and older with chronic conditions.

  Partnership for Solutions 2004, *Chronic Conditions: Making the case for ongoing care*

- Spending on long-term care services for the elderly is projected to increase at least two and a half times by 2050—to $379 billion.

  United States General Accounting Office 2002, *Long-Term*

Direct Costs for Neurological Conditions in Canada, 2000-2001

	Hospital Care Expenditures		Physician Care Expenditures		Drug Expenditures		Total Direct Cost
	$ (Million)	% of Total	$ (Million)	% of Total	$ (Million)	% of Total	$ (Million)
Alzheimer's disease	398.66	92.4	7.66	1.8	25.05	5.8	431.37
ALS	13.63	98.8	0.16	1.2	NA	NA	13.79
Brain tumours	72.53	73.7	24.50	24.9	1.36*	1.4	98.38
Cerebral palsy	37.05	93.2	2.69	6.8	NA	NA	39.74
Epilepsy	44.82	45.0	25.63	25.7	29.11	29.2	99.56
Head Injury	150.71	99.3	0.31	0.2	0.71	0.5	151.73
Headache	106.54	25.9	74.19	18.1	230.29	56.0	411.03
Multiple sclerosis	58.40	42.0.	12.09	8.7	68.73	49.4	139.22
Parkinson's disease	89.21	44.2	13.35	6.6	99.30	49.2	201.86
Spinal injuries	61.62	100.0	NA	NA	NA	NA	61.62
Stroke	579.53	87.2	67.55	10.2	17.79	2.7	664.86
Total	1,612.70	69.7	228.13	9.9	472.33	20.4	2,313.16

Indirect Costs for Neurological Conditions in Canada, 2000-2001

	Mortality Cost		Morbidity Cost		Total Indirect Cost
	$ (million)	Percentage of Total	$ (million)	Percentage of Total	$ (million)
Alzheimer's disease	383.47	38.3	618.35	61.7	1,001.82
ALS	168.57	100.0	N/A	N/A	168.57
Brain tumours	805.06	100.0	N/A	N/A	805.06
Cerebral palsy	90.11	26.3	252.02	73.7	342.13
Epilepsy	162.54	23.3	535.55	76.7	698.09
Headache	0.00	0.00	351.17	100.0	351.17
Multiple sclerosis	172.80	21.3	638.45	78.7	811.25
Parkinson's disease	93.80	38.3	151.14	61.7	244.94
Stroke	1,327.33	63.2	772.35	36.8	2,099.68
Total Cost	3,203.68	49.1	3,319.03	50.9	6,522.70

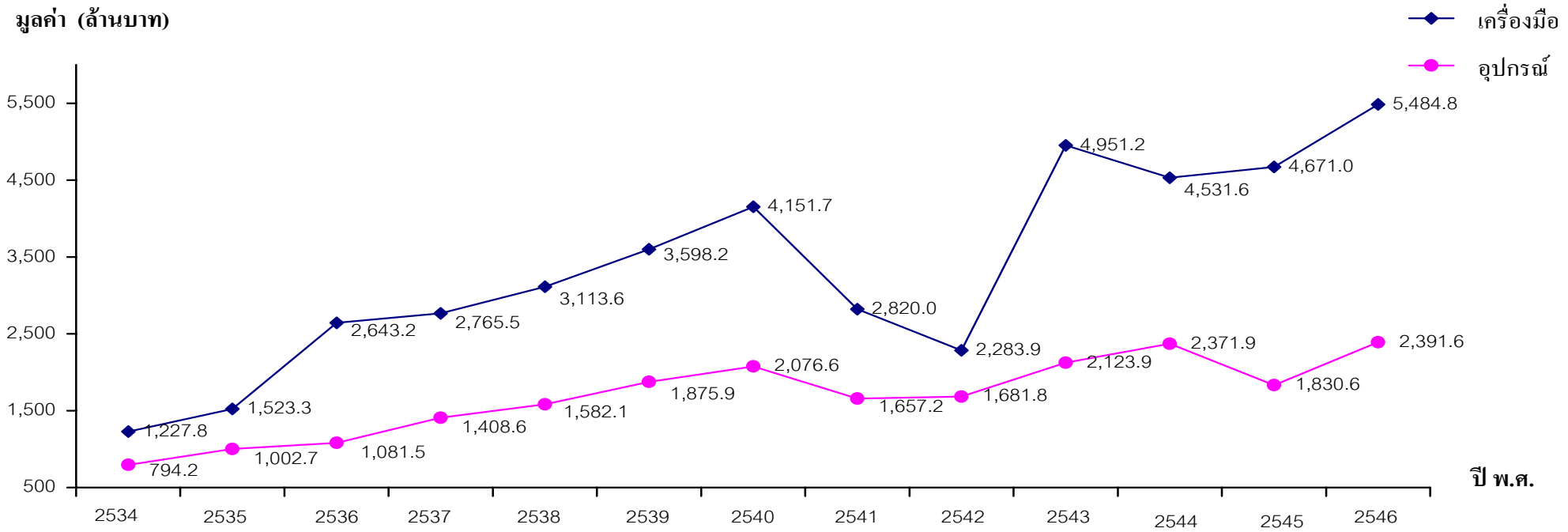
4. Technology Assessment

- Does surgery impact the outcome in patients with acuteintracerebral hematoma
- Does surgery impact the outcome in patients with acute intracerebral hematoma
- Does intra-arterial (IA) thrombolysis reduce strokerelated mortality and disability in adults with acute ischemic stroke?

4. Technology Assessment

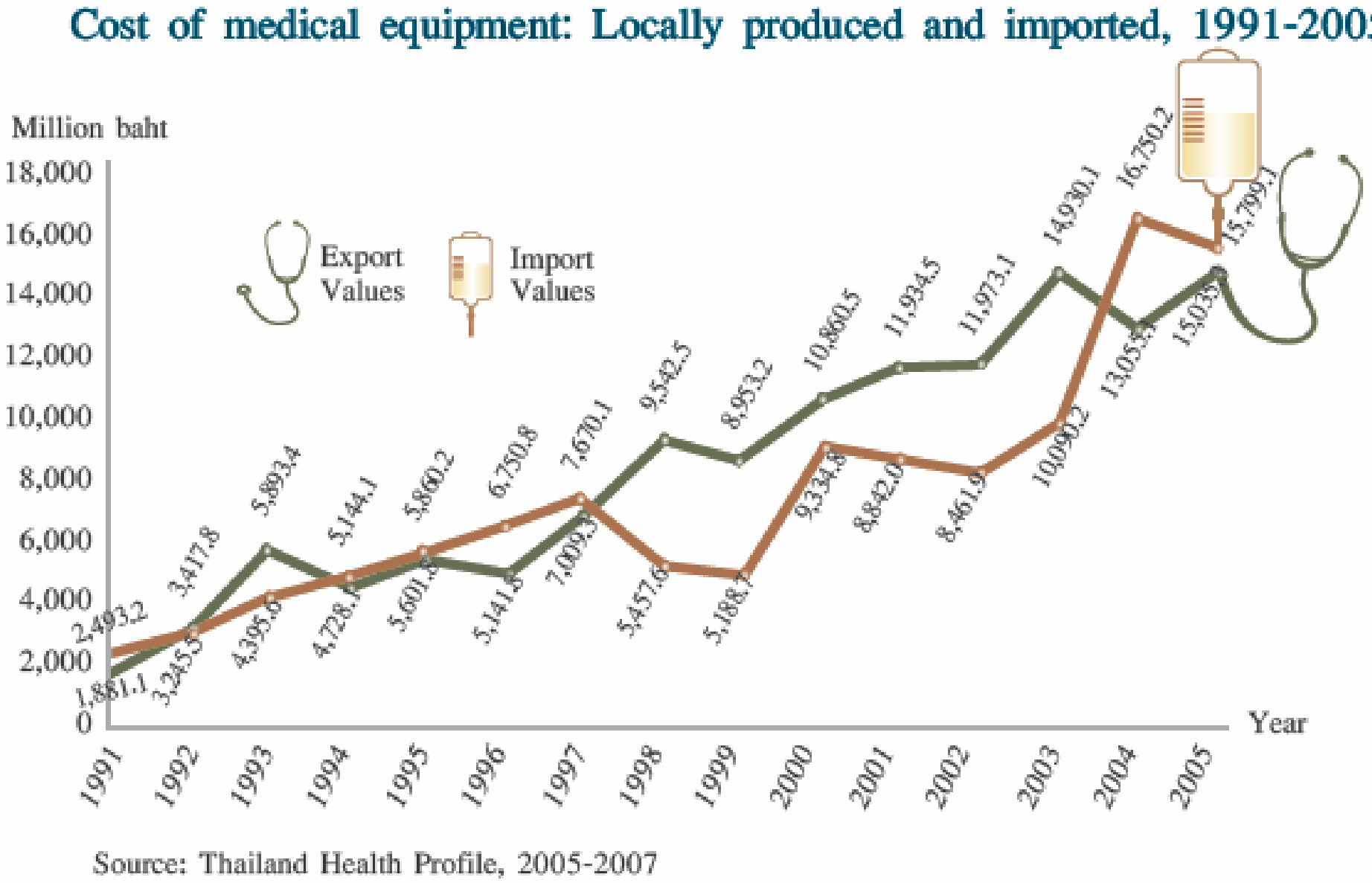
- Does treatment to normalize blood glucose levels reduce stroke-related mortality and disability in adults with acute stroke?
- Does mechanical clot disruption reduce stroke-related mortality and disability in adults with acute ischemic stroke?

5. Health Care Resources



Import of Medical Equipments

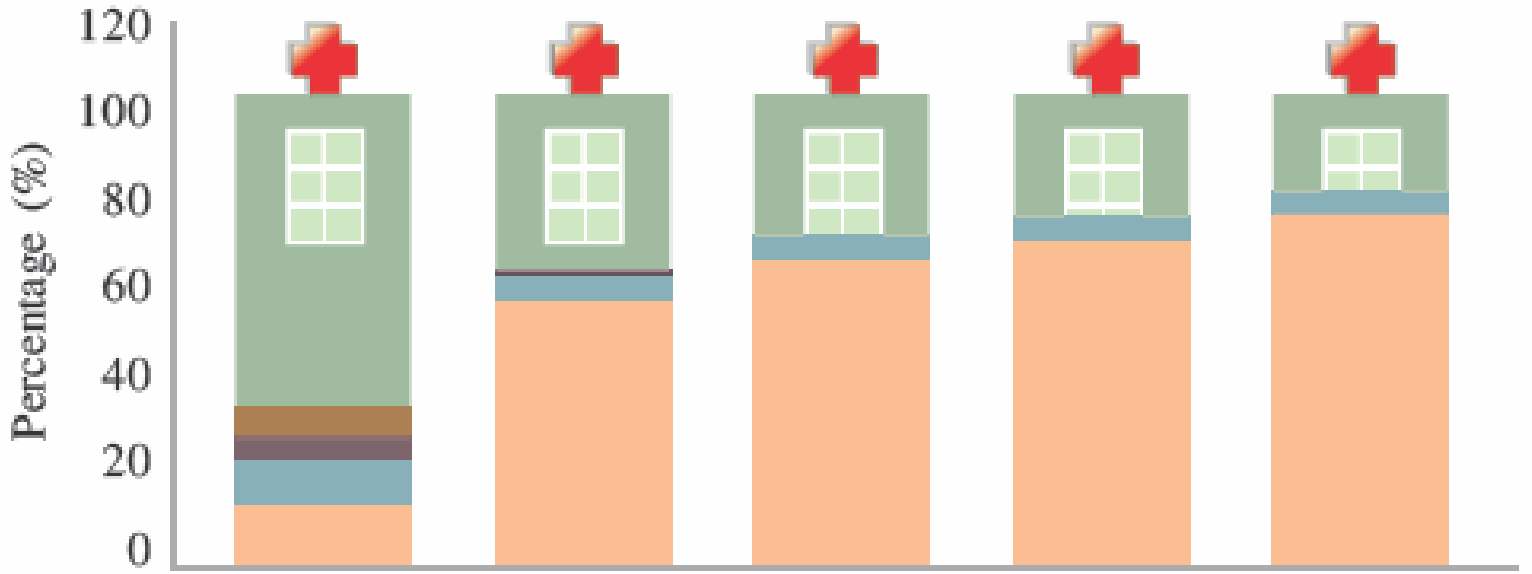
5. Health Care Resources



Source: Thailand Health Profile, 2005-2007

5. Health Care Resources

Proportions of hospitals by agency and region, 2005

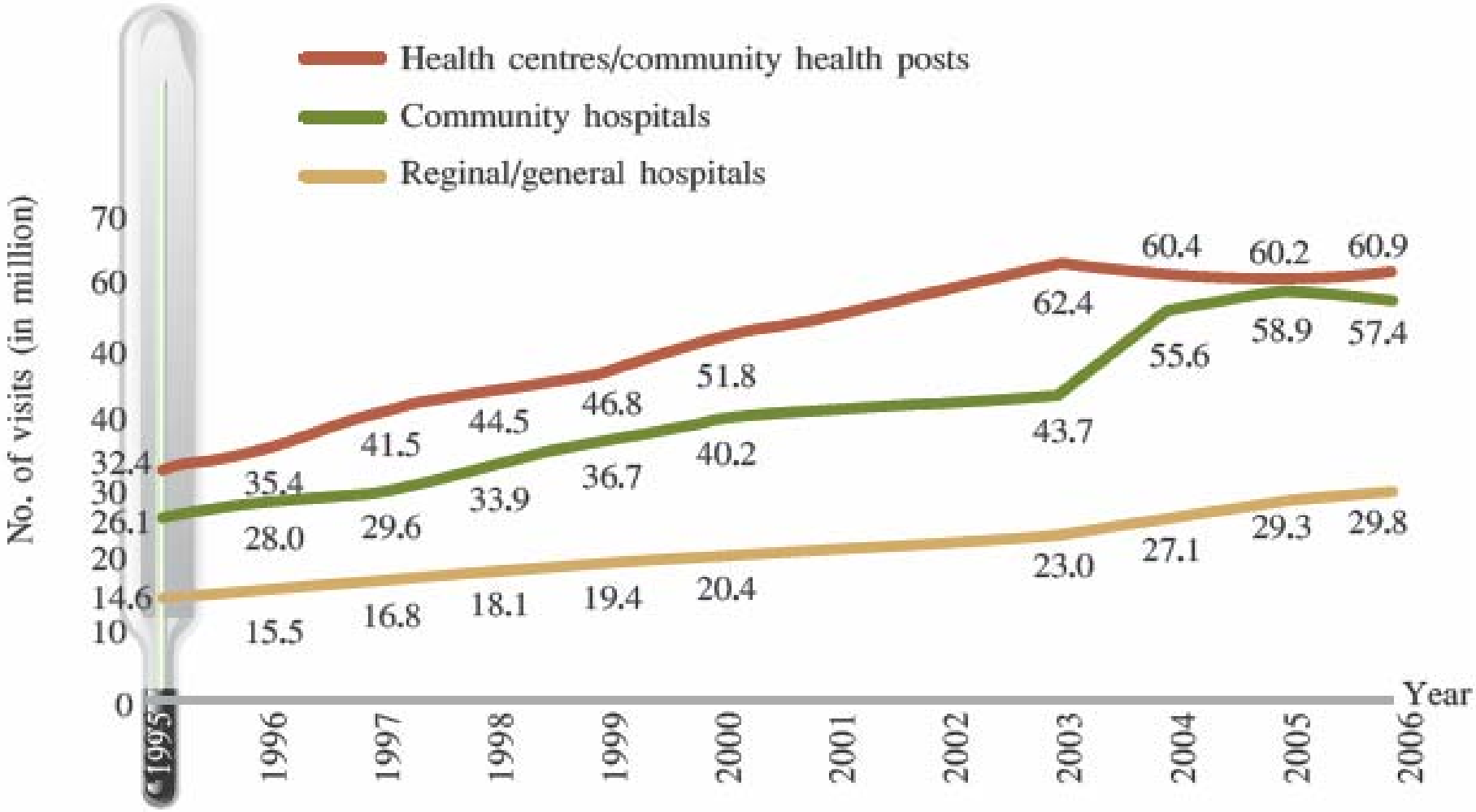


	Bangkok	Central	North	South	Northeast
Private Sector	66.9	30.1	20.2	15.4	11.4
Local administration	7.3	0.0	0.4	0.0	0.0
State enterprises	4.0	1.7	0.0	0.5	0.0
Other ministries	12.1	6.2	6.0	6.1	4.1
MoPH	9.7	62.0	73.4	78.0	84.5

Source: Thailand Health Profile 2005-2007

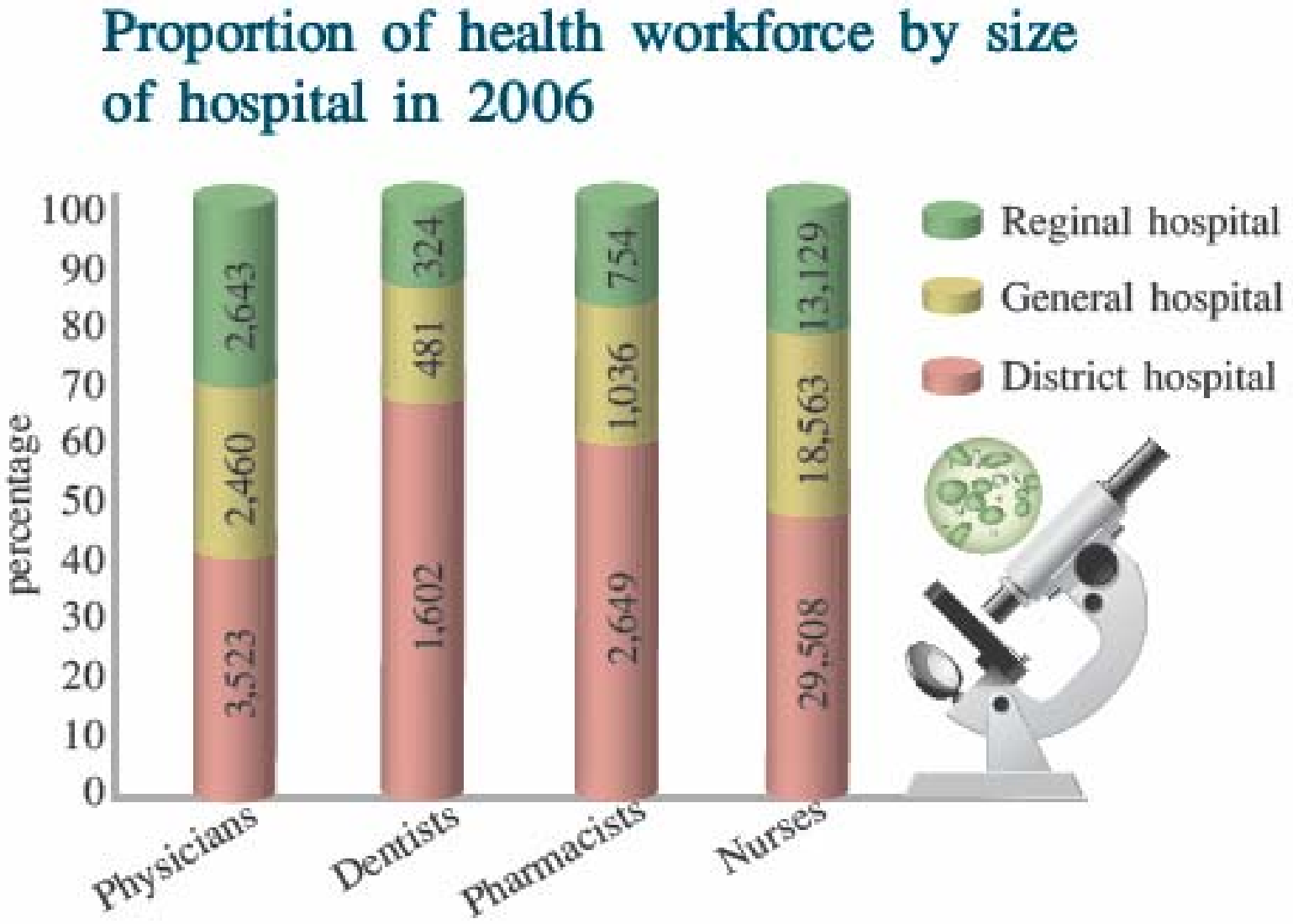
5. Health Care Resources

Trends of out patients (OPD visits) by level of MOPH health facilities, 1995-2006



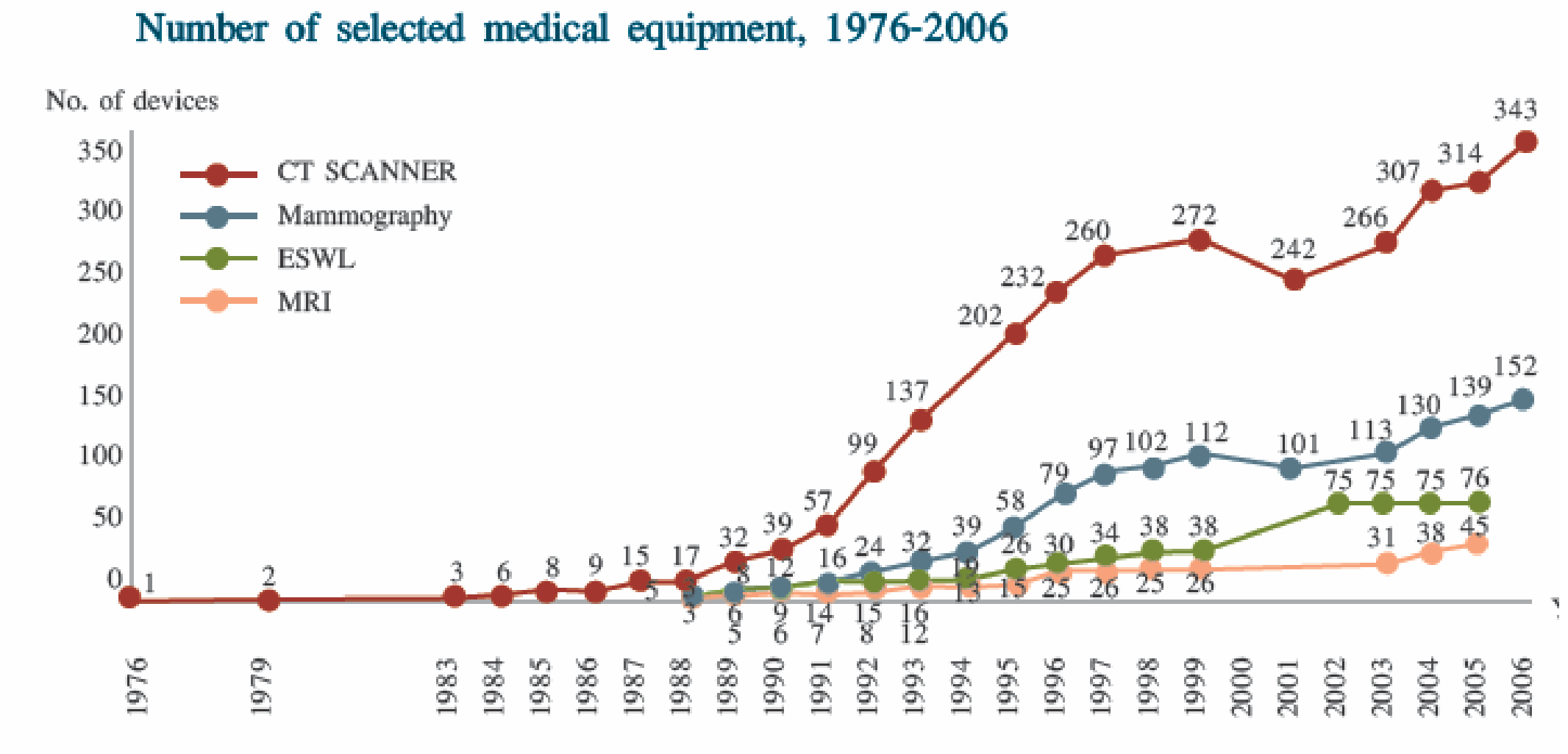
Source: Thailand Health Profile 2005-2007

5. Health Care Resources



Source: Report on Health Resources 2006, Bureau of Health Policy and Plan cited in Thailand Health Profile 2005-2007

5. Health Care Resources



4 Expensive Medical Equipments

ที่มา: วงเดือน จินดาวัฒนะและคณะ 1999

Medical Equipments	Amount	Public		Private	
		Amount	%	Amount	%
ESWL	38	23	61	15	39
CT scan	272	62	23	210	77
MRI	26	10	38	16	62
Mammography	112	40	36	72	64

4 Expensive Medical Equipments

ที่มา: วงเดือน จินดาวัฒนะและคณะ 1999

	Population (million)	Amount / million population				Discrepancy index			
		ESWL	CT	MRI	Mammo	ESWL	CT	MRI	Mammo
Bangkok	5.6	3.4	15.9	3.2	10.9	5.5	3.6	7.9	5.9
Up country	55.5	0.3	3.3	0.1	0.9	0.6	0.7	0.4	0.5
-Central	14.2	0.2	5.2	0.1	1.5	0.3	1.2	0.3	0.8
-Northern	12.1	0.4	3.4	0.2	0.6	0.7	0.8	0.4	0.3
-North-Eastern	21.2	0.4	2.2	0.1	0.7	0.7	0.5	0.2	0.4
-Southern	8	0.3	2.8	0.3	1.1	0.4	0.6	0.6	0.6
All country	61.1	0.6	4.5	0.4	1.8	1.0	1.0	1.0	1.0

Medical Specialist by regions 2004

(Bureau of Policy and Strategy)

Discipline	Bkk	Central	NE	N	S	all
1. GP	171	183	91	97	33	575
2. Family Medicine	184	153	162	123	50	672
28. Neurology	**65**	**27**	**17**	**15**	**9**	**133**
37. Neurosurgery	**81**	**65**	**31**	**31**	**97**	**305**

6. Quality of Care

Example of Health Care indicators

- Joint Commission for Accreditation of Healthcare Organization (JCAHO) USA (JCAHO, 1999)
- Maryland's Quality Indicator Project, Maryland USA (MHA, 1998)
- Canadian Council on Health Service Accreditation (CCHSA) CANADA (CCHSA, 1997; CCHSA, 1999)
- The Australian Council on Healthcare Standards Australia (Collopy and Balding, 1993)

Stroke Quality of Care

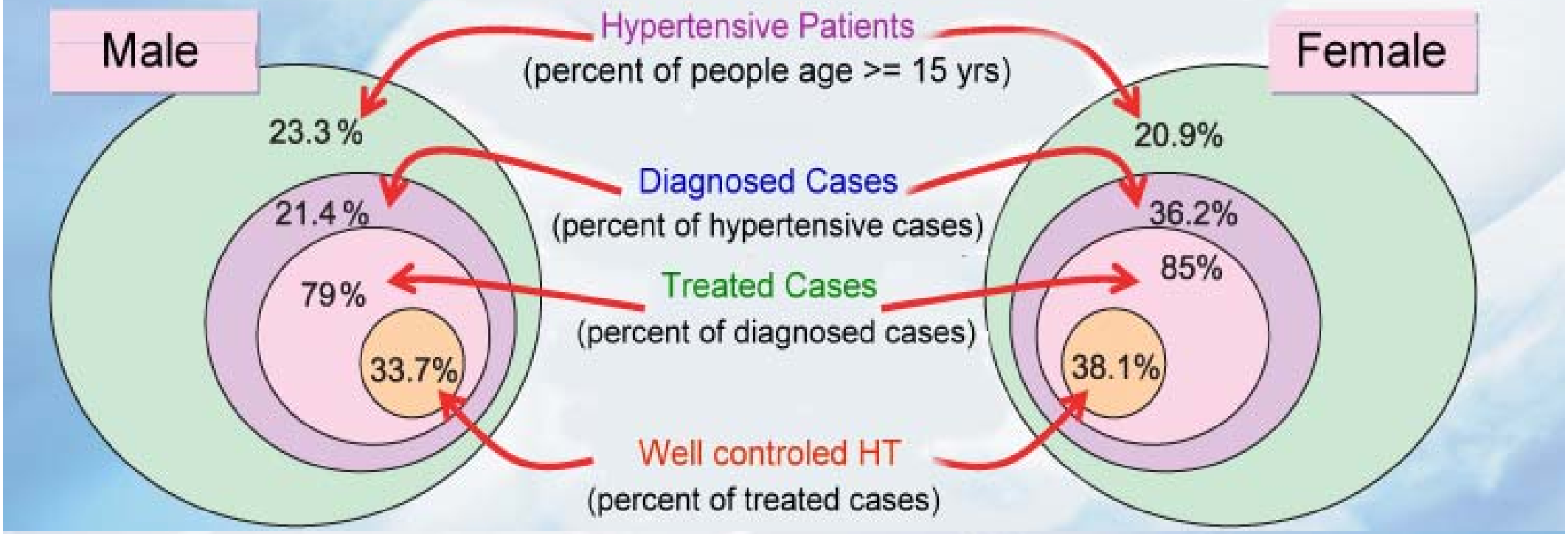
- Give instruction to patients and relatives
- Early rehabilitation
- Early speech therapy
- Anti-platelet given within 48 hrs.
- Anti-platelet given on discharge
- Anti-coagulant treatment for atrial fibrillation
- CT scan for stroke suspected patients
- Appropriate vascular studies in stroke and TIA
- Screening for deglutination problem
- 7 day IPD death rate
- Rate of pneumonia in stroke patients
- CT scan within 1 hr in stroke patients coming to hospital within 2 hrs after onset

Quality indicators of HAI

- IPD death rate
- Death rate during operation
- Perinatal mortality rate
- Nosocromial infection rate
- Post-operative infection rate
- Adverse drug reaction rate
- Adverse reaction from blood transfusion
- Unplanned readmission within 28 days after discharge
- Unplanned re-operation in single admission
- Low infant birth weight by mother appropriately attended the hospital's ANC

Quality indicators of HAI

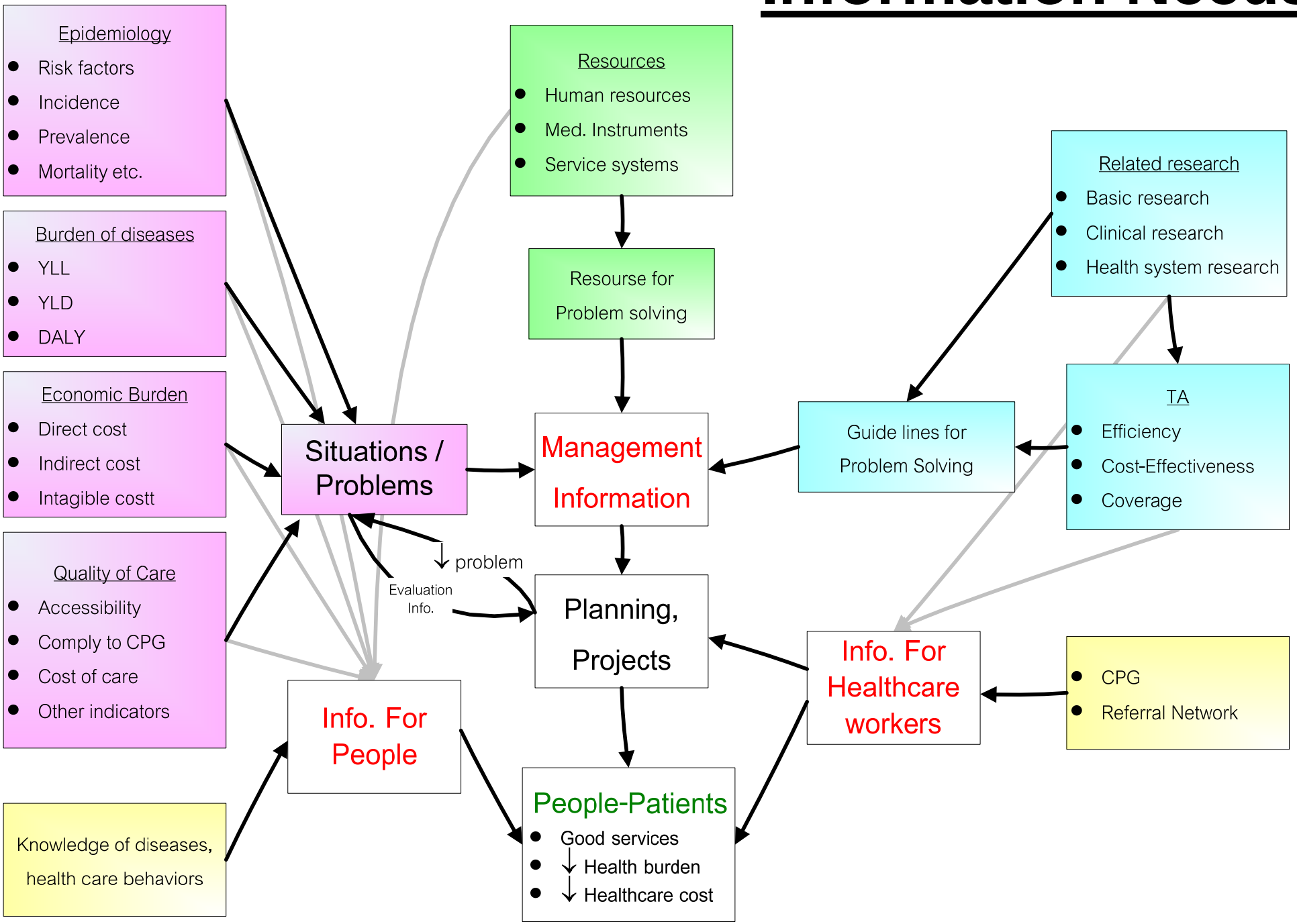
- Medical record completeness
- OPD satisfaction rate
- IPD satisfaction rate
- Waiting time at ER
- Average LOS in top 10 DRGs
- Average DRGs-RW
- Cesarean section rate
- Rate of abnormal finding in CT scan study for head injury
- Rate of director attending quality steering team meeting
- Medical personnel retaining rate
- Bed occupancy rate
- Quick and Current ratio



Percentage of dianosis and treatment of HT by regions

Hypertension	Central	North-east	North	South	Bangkok	All
Non diagnosed	68.8	79.7	70.1	63.4	56.5	71.4
Diagnosed - not treated	5.2	5.1	3.4	6.5	6.4	4.9
Treated - uncontrolled	17.9	8.9	18.2	16.7	19.0	15.0
Treated - controlled	8.2	6.3	8.3	13.4	18.1	8.6

Information Needs



Where to get Information needed for Policy Formulation ?

Groups	Information sources
Management Information	
Epidemiology	• Research, Survey • Database • Surveillance • Death certificate
Prevalence	
Incidence	
Risk factors	
Mortality rate	
Age standardized death rate	
Burden of Diseases	“Burden of Disease in Thailand”
Economic Burden	• Few studies in Thailand • Database (charge)

Groups	Information sources
Health Resourses	
Human resourses	• Medical Council • Bureau of Policy and Strategy • Medical Colleges • Survey
Medical instruments	• Survey • Import data • Budgeting information
Technology Assessment	Research
Quality of Care	Indicators and information system setting

Groups	Information sources
Information for health care personel	
CPG	• Medical college, DMS
Related standards	
TA and Research results	
Referral Systems	

groups	Information sources
Information for people	
epidemiology (risk factors, health care knowledge)	
Health care services and resource	

How to develop HIS for Policy Formulation ?

HIS development

- from existing databases
- Develop new databases
- from Research and survey

Existing databases

- Databases from 3 major funding agencies
  - UC the 12 files
  - Social Security
  - CSMBS

Common data items in 3 databases

Fields	Descriptions
AN	Admission numbers
HN	Hospital numbers
DOB	Date of birth
SEX	gender
AGE	age
DATEADM	Date of admission
DATEDSC	Date of discharge
DISCHS	Discharge status
DISCHT	Discharge mode
AMOUNT	Expenses (Charge)

Common data items in 3 databases

Fields	descriptions
DRG	Diagnosis Related Groups
RW	Relative Weight
ADJRW	Adjusted RW
PDX	Principle diagnosis
SDX1-SDX3	Diagnosis ICD-10
PROC1-PROC4	Procedure
MONTH	Month of discharge
YEAR	Year of discharge
LOS	Length of stay
SEVERE	Severity by DRG

Information that can be derived from 3 databases

Prevalence	Only those came to hospital
Incidence	Count only new cases
Risk factors	X
Death rate	Link with mortality database (DOI)
Age adjusted death rate	Calculate from death information
Burden of diseases	X
Economic burden	Can only calculate charge (may reflect hospital direct cost)
Quality of care	Partly (e.g. LOS, death rate, charges)

Other Databases

- **Health Office database**
  - **The 18 files**
- **Other databases**
  - **Citizen data (DOI)**
  - **Death certificate**
  - **Medical instrument DB**
  - **Human resource DB**
  - **Etc.**

Existing Databases

- Problem of sharing data and quality of data

HCUP NATIONWIDE INPATIENT SAMPLE (NIS)

All users of the NIS must take the on-line Data Use Agreement (DUA) training session, sign a Data Use Agreement, and send a copy to AHRQ.[†]

Authorized users of HCUP data agree to the following limitations:[‡]

- Will not use the data for any purpose other than research or aggregate statistical reporting.
- Will not re-release any data to unauthorized users.
- Will not identify or attempt to identify any individual.
- Will not link HCUP data to data from another source that identifies individuals.
- Will not report information that could identify individual establishments (e.g., hospitals).
- Will not use the data concerning individual establishments for commercial or competitive purposes involving those establishments.
- Will not use the data to determine rights, benefits, or privileges of individual establishments.
- Will not identify or attempt to identify any establishment when its identity has been concealed on the database.
- Will not contact establishments included in the data.
- Will not attribute to data contributors any conclusions drawn from the data.
- Will not use data elements from the proprietary severity adjustment software packages (3M APR-DRGs, HSS APS-DRGs, and Medstat Disease Staging) for any commercial purpose or to disassemble, decompile, or otherwise reverse engineer the proprietary software.
- Must acknowledge the "Healthcare Cost and Utilization Project (HCUP)," as described in the Data Use Agreement, in reports.

Any violation of the limitations in the Data Use Agreement is punishable under Federal law by a fine of up to $10,000 and up to 5 years in prison. Violations may also be subject to penalties under State statutes.

New databases

- Surveillance or registry setup

Develop database from Research and survey

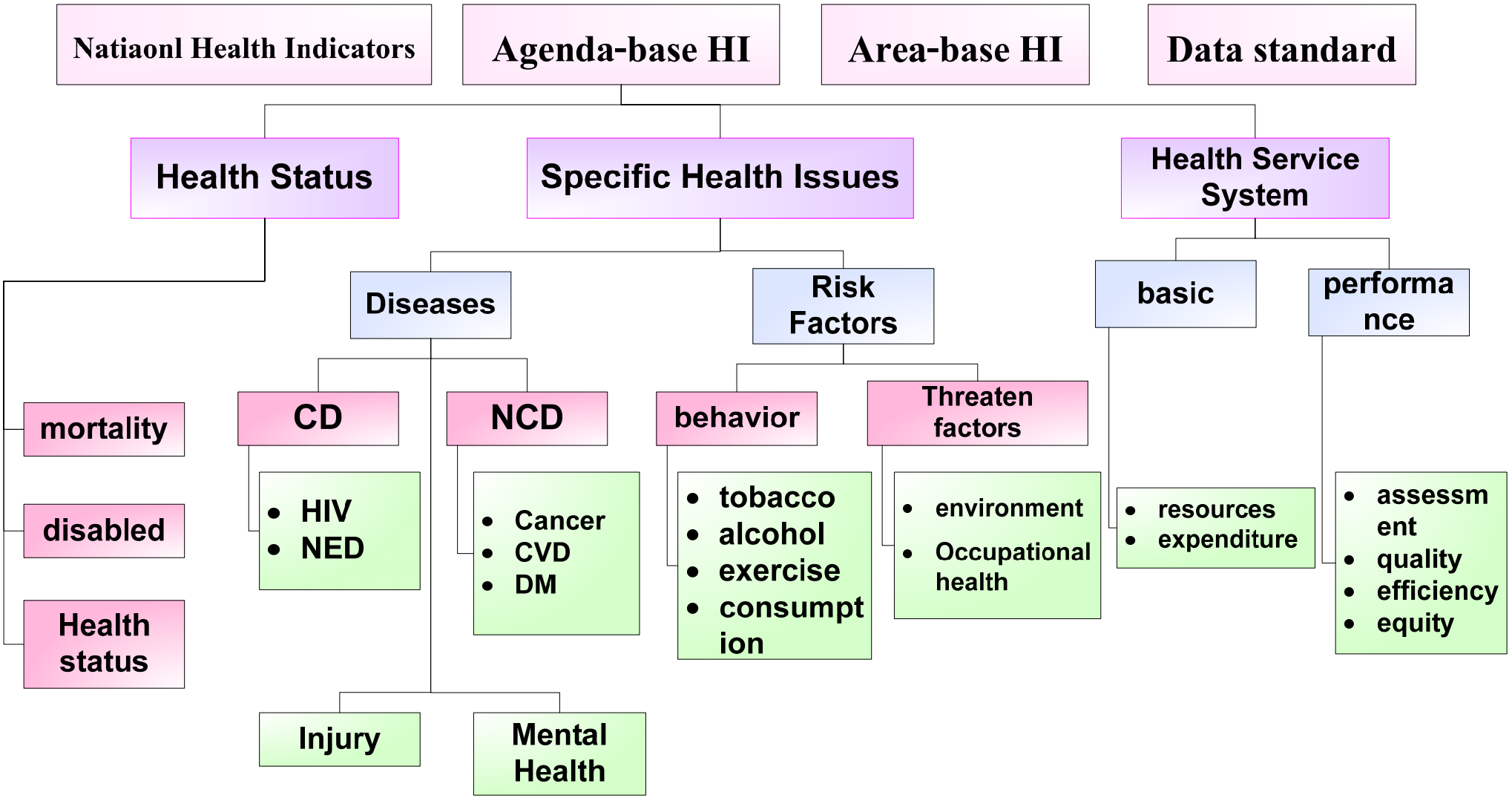
- Existing researches and survey
- New research and survey

Who are responsible

Should be network

- Bureau of Policy and Strategy
- DMS and other Departments
- Funding agencies (NHSO SSS CSMBS)
- Medical colleges and other NGO
- HSRI + HISO

HISO health information model



How to turn information into Policy?

policy (*plural* **policies**)

1.A plan or course of action, especially one of an organization or government

- ***The Communist Party has a policy*** *of returning power to the workers*

Public Policy

Thomas R. Dye's description:

public policy is whatever governments choose to do or not do

Model for Policy making

- Comprehensive Rationality
- Incrementalism
- Bounded Rationality
- Mixed Scanning
- Public Choice
- Government Politics
- Socio-Economic Determinants

Comprehensive Rationality

1. The decision-maker is confronted with a given problem that can be separated from other problems or at least considered meaningfully in comparison with them
2. The goals,values or objectives that guide the decision-maker are clarified and ranked accordtng to their importance
3. The various alternatives for dealing with the problem are examined.
4. The consequences (costs and benefits, advantages and disadvantages) that would follow from the selection of each alternative are investigated.
5. Each alternatives and its attendant consequences. can be compared with the other alternatives.
6. The decision-maker win choose tha alternative and its consequences, that maximizes the attainment of his or her goals, values, or objectives.

Incrementalism

- Policies are seldom changed radically
- Policies are changed incrementally as a result of “successive limited comparisons” between the status quo and some very close alternatives

Bounded Rationality

Individual choices takes place in an environment of “givens” –premises that are accepted by the subject as bases for his choice; and behavior is adaptive only within the limits set by these “givens.”

Mixed Scanning

two different kinds of decisions

- fundamental and
- incremental

Public Choice

- Economic study of non market decision making, simply the application of economics to political science
- The political game, the bureaucratic game, the special interest group game, and the media game. Each game has its own set of rules. These sets of rules constitute the incentive systems under which the individuals and teams operate
- Collective decisions votes for the party he believes will provide him with a higher utility income than any other party during the coming election period.

Government Politics

- The governmental or bureaucratic politics model sees government as composed of a number of different departments and agencies. each with its own goals and each trying to mould policy to further its own interests

Socio-Economic Determinants

- Policies evolve in response to certain changes in the socio-economic environment of a society
- Individuals and groups scope for autonomous action is severely limited by the environmental constraints
- Phase 1 economic growth by resource appropriation
- Phase 2 economic growth by capital accumulation
- Phase 3 economic growth by economic stabilization

Researcher's Barriers to Dissemination of Research Outputs

1. Policymaker's Perceptions of Research

The ministers make the policies themselves, without using what we send them, they don' t realize that research could help them

The resistance is big basically because most policymakers don' t think that research is essential for their policies. There is a general feeling among policymakers that as far as policymaking goes they are the experts. If you want to bring in researchers they are just there to punch in numbers

2. Emphasis on Statistics

They (policymakers) are interested in a few indicators, for example, what is the CPR? Which they have to report to their highers, but other areas that are really important such as quality and side effects are not given as much attention

Researcher's Barriers to Dissemination of Research Outputs

3. Lack of Dissemination Skills and Access to Policymakers

Researchers are not trained to communicate with policy people. The focus is to write papers for publication for a completely different audience.

Few researchers know about the difference of writing for policymakers, so they submit big reports.

4. Lack of Resources

5. Donor-Researcher Relationship

These researchers get funding which has been specified to be targeted at specific areas, but that is not what the policymakers really need

Policymaker's Barriers to Uptake of Research Outputs

1. Limited Access to Research Outputs

The research that has been conducted is usually by the academics or the universities, and is published in the international journals and so they don't get shared at the local level or the country level.

2. Lack of Central Source of Research Outputs

3. Quality of Research

Mutual Barriers to Communication

1. Lack of Formal Communication Channels

2. Lack of Collaborative Research

There needs to be a whole dialogue between policymakers and researchers at the beginning of the research study, so that it becomes something that programmers have a vested interest in and researchers understand that vested interest and try to meet it. That might help to facilitate the uptake of research findings in decision-making

3. Format and Interpretation of Research Findings

Reports are in an indigestible form without adequate analysis of policy or programmatic implications; therefore people note the findings but don't act on them

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It is the how part, how you can change things, what you should do. Researchers usually don' t do that, they put the research on the table and say now you figure out what to do

4. Political Influences

Everyone who read the report thought it was excellent, the Ministers were very happy with it, but no one could implement it as it was too politically contentious

Some researchers may recommend one way which may be the most effective but not the cheapest – so we cannot implement it. In developing countries need cheap and effective recommendations

Conclusion and suggestion

conclusion

- **Information needed for policy formulation are epidemiology, burden of diseases, economic burden, health resources, technology assessment and quality of care.**

conclusion

- **Those information are scattered and incomplete**
- **Some of Information needed are available i.e. epidemiology, burden of disease, health resource**
- **Information that still lack are economic burden, technology assessment and quality of care**

conclusion

- We can develop information system from major sources that are
  - Existing databases especially those of 3 insurance funding agencies and health office databases
  - Gathering from existing research and surveys
  - Develop new research and surveys for information that still lacking

conclusion

- **Still lack of method to use the existing database together**
- **Data verification is still needed since there are some discrepancies in the information reviewed**

conclusion

- **Network should be setup among parties working and using the information such as Bureau of Policy and Strategy, various departments under MoPH, medical schools, funding agencies (NHSO,SSS,CSMBS), Medical colleges and associations, HSRI and HISO**

conclusion

- **Good information system alone is not guarantee to be used for policy formulation**
- **Politicians, Professionals, Public health advocates and Consumers have to work together (may be from the beginning) in order to make use of information toward policy formulation**