ILO/EU/Thailand/R.39

Thailand

Health Care Reform: Financial Management

Report 5

An International Course in Health Finance for South-East Asia

September 2009

ILO component:
Financial Management of the Thai Health Care System (THA/05/01/EEC)
under:
EU/Thailand Health Care Reform Project (THA/AIDCO/2002/0411)

Social Security Department
International Labour Office - Geneva

ILO Cataloguing in Publication Data

Thailand: health care reform: financial management. Report 5, / International Labour Office, Social Security Department. - Geneva: ILO, 2010
viii, 66 p. (An international course in health finance for South-East Asia)

ISBN: 9789221224525; 9789221224532 (pdf)

International Labour Office; Social Security Dept

medical care / health insurance / health service / health expenditure / social security financing / training course / Thailand

02.07.6

Printed in Switzerland

Contents

Page

List of abbreviations v

Reports produced under the Project vi

Foreword vii

1. Introduction 1

2. Basic economic considerations guiding the course design 5

3. Course components 9

3.1. Block I: Introduction: Health systems, problems and reforms 9

3.2. Block II: Patients 12

3.3. Block III: General Economics 14

3.4. Block IV: Provider management 18

3.5. Block V: Health Economics – the role of the purchasers 22

3.6. Block VI: Innovations of health care financing 25

3.7. Block VII: Tools and instruments – budgeting and cost control 28

3.8. A financial projection model for the health sector of Thailand 30

4. Coordination with Naresuan University, Phitsanulok, Thailand 33

5. Master course cost estimations 35

Annex 1. Public health on the internet 39

Annex 2. Example for hospital bookkeeping framework; 47

Decree, annex 1: Structure of Balance Sheet 49

Decree, annex 2: Structure of income statement 52

Decree, annex 3: Proof of investments (not included) 53

Decree, annex 4: Accounting frame (Account classes 0 -8) 53

Decree, annex 4: Allocation key 61

Decree, annex 5: Cost centres 65

List of abbreviations

BoB	Bureau of Budget, Thailand
CSMBS	Civil Servants' Medical Benefit Scheme
DRG	Diagnosis Related Group
EU	European Union
IHPP	International Health Policy Program
ILO	International Labour Organization or International Labour Office
ILO-SEC/SOC	Social Security Department of the ILO
MoC	Ministry of Commerce
MoF	Ministry of Finance
MoPH	Ministry of Health
NHA	National Health Accounts
NHSO	National Health Security Office
NU	Naresuan University, Phitsanulok, Thailand
NU-FoM	Naresuan University, Faculty of Medicine
SSO	Social Security Office
TOR	Terms of Reference
UC	Universal Health Care Scheme
UM	University of Maastricht
UNIL	University of Lausanne
VB	Visual Basic©
WCS	Workmen's Compensation Scheme

Reports produced under the Project

Report 1 Statistical reporting: Structures, methodologies, data and outputs. Initial review

Report 2 The calculation of capitation fees and the estimation of provider payments. Initial review

Report 3 A Financial Coordination Framework. A first general outline

Report 4 Proposal for a Revised Capitation Calculation and Financial Equalization System

Report 5 An International Course in Health Finance for South-East Asia

Report 6 A Common Health Care Financing Model (I) for CSMBS, IHPP, NHSO and SSO, and Proposal for a Financial Management Structure.
Terms of Reference, Review, Supervision

Report 7A A Common Health Care Financing Model (II) for the main health purchasing agencies
- Universal Coverage Scheme
- Social Security Scheme
- Civil Servants' Medical Benefits Scheme, and

Projection Module for the National Health Accounts
User Manual

Report 7B A Common Health Care Financing Model (II) for the main health purchasing agencies
- Universal Coverage Scheme
- Social Security Scheme
- Civil Servants' Medical Benefits Scheme, and

Projection Module for the National Health Accounts
Documentation of work and progress

Report 8 A Common Health Care Financing Model (III) for CSMBS, IHPP, NHSO and SSO, and Proposal for a Financial Management Structure.
Note on Implementation

Report 9 A Data Reporting Framework

Report 10 Indicators for the Financial Coordination Group for monitoring the UC scheme and national health budget

Report 11 Contents and Structure for Annual Reporting on the Financial Development of the Public Health System

Report 12 Structure and implementation of an Integrated Financial Monitoring System for the health system of Thailand, and
Project Synopsis

Foreword

Since May 2003 the European Union (EU) has been committed to supporting health care reform in Thailand through the **Health Care Reform Project** (THA/AIDCO/2002/0411). The support and assistance of the EU followed Thailand's bold step towards achieving full population coverage in health care in 2001 when Universal Health Care was written into law with the introduction of what became popularly known as the "30 Baht" scheme. Under the scheme full access to health services became available to all Thai citizens.

A separate component was established within this project to address issues relating to the **Financial Management of the Health Care System** which is being executed by the Social Security Department of the International Labour Office, Geneva (THA/05/01/EEC). Technical assistance activities under the project have been on-going since spring 2006 and will continue until mid-2009.

Specific activities were scheduled under the ILO component, to be documented in a series of technical reports. The present report is both: a documentation of activities undertaken but also, and predominantly, a description of a proposed *International University Course in Health Finance for South-East Asia* as prescribed under the TOR of the financial management component.

The course design as proposed in this report has been developed after intense discussions between ILO and the Thai counterparts over an extended period, particularly during 2007. The fact that the overall financial component became clearer and more consensual between ILO and the Thai counterparts as the project progressed significantly contributed to a logical course design. The discussions between the parties took great advantage of several aspects significant to its smooth and output-oriented evolvement:

(1) ILO-SEC/SOC's ample experience in lecturing in the context of similar courses at the University of Maastricht (UM) Graduate School of Governance in the Netherlands, and at the University of Lausanne (UNIL) Haute Ecole de Commerce in Switzerland;

(2) ILO's growing understanding in the context of its development of a finance planning model, of the financial fabric of Thailand's health system, especially of its more generic features, that apply to the financial interdependencies of health systems in general and, thus, in the South-East Asian region;

(3) the fact that personnel of the Thai health purchasing institutions (CSMBS, NHSO, SSO) and of Naresuan University (NU), both core to the development of this course, have meanwhile participated in the Masters course in Social Protection Financing at the University of Maastricht, contributed considerably to a mutual understanding between ILO and its Thai counterparts of the requirements of a health financing course for South-East Asia; and

(4) the development of a teaching version of the health finance planning model.

Finalization of the proposed course contents, and its structure, very much profited from concrete and constructive advice provided in 2008 by *Evaplan GmbH*[1] (Heidelberg University Medical Centre), Germany.

[1] http://www.evaplan.org. Evaplan GmbH is a consulting firm in the field of international health; it specialises in health system development, and in this context carries out, *inter alia*, training and curriculum development.

This report describes a general course structure which broadly consists of seven teaching / study blocks of around four weeks each, and a “generic” teaching model for health finance planning (see table of contents, paragraphs 3.1 to 3.8).

The content of the course design has been coordinated with the Faculties of Medicine and Economics at NU; the Faculty of Medicine will be responsible for carrying out the course as and when it may be implemented.

Due to overlaps in the discussion process coupled with a continuously improved understanding leading to the design as proposed in this report, and taking account of (time) constraints as a result of administrative procedures at NU as well as ILO, there are some differences between the course design as officially presented to the relevant bodies of Naresuan University in October and November 2007, and the course design now outlined in this report. For details on differences, see chapter 4.

Given the close communication between all parties concerned on the issue of course development, these differences are, however, not considered important, as precise course contents, teaching materials, course books, and other necessary elements can in any case only be finalised directly before course commencement, when all teachers, venue and available financial resources are established; teachers will always have the right to adjust course material contents according to their needs and as considered necessary, particularly - as is the case here - when materials have been developed by a third party.

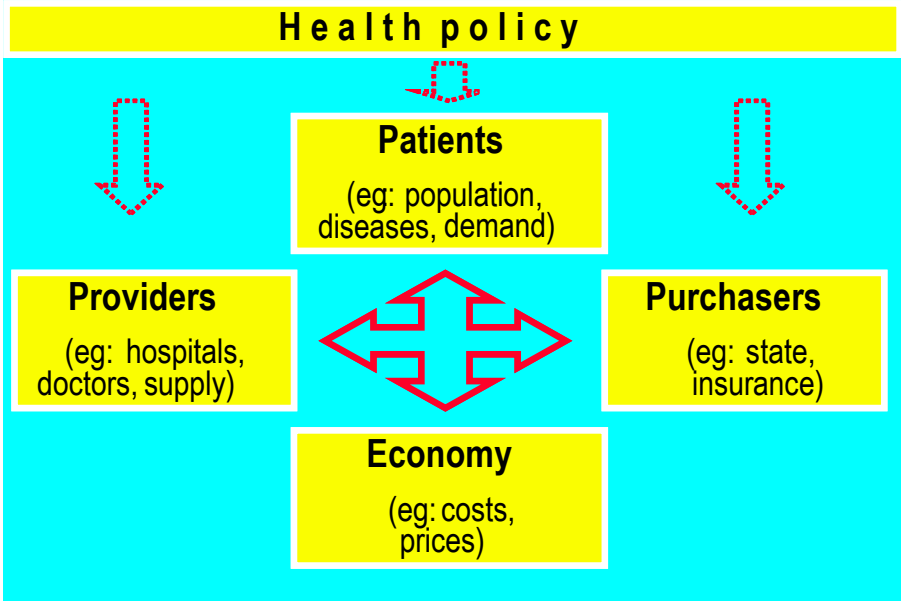
1. Introduction

There is unchallenged evidence that economic success and harmonic societal developments cannot be achieved and maintained over long periods if not bolstered by reliable and sound health systems.

In the domain of health policy advice is being confronted with a multitude of issues. These range *from* assessing and closing any existing gaps between individuals' health needs and monetary health demand *over* assessing and shaping the volume, structure and production conditions of health services (supply) to the making available of resources (budgeting) in (macro-)economic contexts.

A possibility of formal structured access to health systems from the perspective of policy advice is depicted in chart 1.

Chart 1. Health policy and the four gravity centers of contemporary health systems



Source: ILO 2008.

We distinguish four gravity centres of contemporary health systems: patients, providers, purchasers, and "the" economy. Hovering above all is "health policy", which is guided by a variety of different goals and principles. In principle, this setting allows analysis from various research perspectives: medical, sociological, technological, philosophical, and the like. In this course, health systems, and health finance especially, will mainly be addressed as accessible to economic reasoning; economic analysis is considered most appropriate as economics, at its core, covers analysis of (unlimited) needs and (limited) resources – a situation especially prevalent in "health".

Apart from exposing them to theoretical knowledge the course will make students familiar with practical management problems of health systems. In doing so, the course takes mainly the perspective of a national health policy maker who is one among many other policy players. National health policy makers usually deal with (groups of) institutions (which are their "natural" counterparts), i.e. health policy typically generalizes and, thus, avoids interference with local developments. In short: national health policy deals with an *institutional macro-perspective*; problems of management at (local) health care provider levels (i.e. issues of business administration), and other aspects of micro-management will

only be touched upon where needed. Accordingly, aspects of systemic (health) information (statistics etc.), systems of resource collection and principles and practice of resource allocation to patients / providers play a centre role.

The course has to address the demand of those for whom health systems are being set into operation, i.e. the patients. They are the carriers of diseases that need a cure. While it is assumed that there is *objective scarcity of health*[2] the actual demand for health services depends on (i) needs and (ii) the availability of resources that allow for covering the resulting monetary demand.[3]

On this background, consequently, students are being made familiar with empirical information about the populations in South-East Asia, their level, structure, development, fertility and mortality (life expectancy). The course touches upon questions of life-style, the prevalence of disease (objective scarcity of health), and other questions directly related to functional aspects of health systems. Students will be trained to develop an empirical understanding of the diseases described (known) to medical science, and their classification in modern international classification systems. Equally, students will be introduced to patient grouping systems according to diagnosed disease and related, adequate treatments, i.e. their Diagnosis Related Group (DRG).

Providers of health services are mainly doctors but also hospitals that, as institutions, organize and rationalize in specified ways the treatment of patients according to standards, predefined by politics, or established practice. In doing so, hospitals usually define the measures to be taken in case of treatment of diseases, that are to be carried out by the medical staff working for / in the hospitals. Hospitals determine when and how patients have access to doctors and other personnel, and to treatment facilities. Therefore, students will be made familiar with the specific interests and the financial constraints under which hospitals perform their activities. In order to understand these, students must understand the organisation and structure of hospitals, and – related hereto – their cost problems, including their accounting and statistical reporting systems.

The natural counterparts to providers are the purchasers of health services, i.e. insurance and state bodies acting in lieu of the patients in favour of their financial interests. Also, purchasers have to make sure that payments - made in return for services - reflect, and check upon, relations between "value and money", and pay providers' bills. Accordingly, purchasers have to check whether patients are being treated according to standards as patients will usually not be able to reflect the correctness of treatment and adequacy of payment. To understand these core functions of purchasers in overall health systems, students will be introduced to the financial set-up of purchasers, their specific financial interest and the necessary informational links that have to be established between purchasers and providers.

Neither providers nor purchasers operate in a closed glass-ball but are indeed exposed to "surrounding" economic and labour market conditions. In order to understand the main economic impacts on provider and purchaser finance, students will be made familiar with

[2] In other words the whole range of questions related to the process of the definition of diseases (diagnosis-setting etc) / measurement of scarcity of health is left untouched in this course.

[3] Traditionally, there was, in all societies, direct contact between patients and providers (doctors; healers; etc). The patient usually paid the doctor directly for its services. In modern societies the patient-doctor-relation still continues to exist, although, to some extent, it is filtered through certain mechanisms of professionalisation. But the *financial* interrelations between patients and providers have meanwhile significantly changed. It is usually the case that an institution, a purchaser (insurance; state) takes on the role of the payee (in lieu of the patient): not the patient pays but an anonymous institution does it in his / her place.

relevant macro-economic theory and practice. They will learn to understand the meanings of:

– economic growth;

– the concepts of “real” and “nominal” variables;

– price measurement and wage definitions.

They will learn to distinguish between prices and costs, which – from a macro-economic point of view – are often two sides of the same coin, but in health economics may make a big difference in interpretation. Inconclusive discussion in health policy often stems from the fact that discussants talk about the same phenomenon but while one party looks at it from the point of view of “prices” the other does so from the point of view of “costs”.

The measurement of costs and prices plays a big role in health policies; accordingly, the course introduces students thoroughly to different price measurement concepts.

Once students have sufficiently studied the above aspects and concepts they are ready to be introduced to concrete fiscal budget planning for both providers (hospitals) and purchasers (insurance). The specific analytical instruments for budget planning of both will be explained, students will undertake budget planning in real case scenarios for providers and for purchasers. They will be exposed to the issue of reconciliation of planning results between providers and purchasers which is a standard situation in the “real world”.

During the course, students will be introduced to a generic finance planning (budgeting) model (Excel based with elements of VB©), which will help them in developing an analytical understanding of health system structures; they will use the model also as a tool for performing tasks and assignments.

2. Basic economic considerations guiding the course design [4]

The course outline is designed under the assumption that health care financing is an economic problem as health care provision takes place in a situation of scarce resources. In economic terms this situation is expressed by the inequality “demand greater than supply”, i.e. the commodities or services to satisfy the needs of persons are insufficient to meet those persons' needs:

$$D > S$$

where D denotes demand and S the supply.

The supply side can be analyzed on two levels:

The micro level is the subject of business administration, i.e. the transformation of the inputs of agents of production into health care services in a single health care unit. For example, human labour, equipment, buildings and materials are used in a hospital to produce operations, bed days or other service units.

The macro level is the subject of health economics as understood in this course. It analyses the provision of health care services by groups (levels) of health care institutions. For example, a traditional health care pyramid consists of the levels of (i) village health care workers, (ii) dispensaries, (iii) health centers, (iv) primary hospitals, (v) secondary hospitals and (vi) tertiary hospitals for (vii) different spatial units, such as districts or regions; and one problem to be solved is to allocate resources to these different levels or spatial units.

The demand for health care services is the end-point of a chain of events and filters. It starts with the objective scarcity of health which can be objectively stated (e.g. by physicians) but the person affected might not necessarily be aware of it. For example, persons might suffer from hypertension without knowing it. Health economists analyze and predict the objective scarcity of health by demographic and epidemiological models.

In this situation demand for health services only emerges if a sick person is aware of it and judges negative the scarcity of health. The subjective experience of scarcity is called need. Obviously, *health education* is required to turn objective scarcity of health into need. Generally, needs can be structured (e.g. physiological needs, security needs, social needs) and prioritized. *Health needs* are usually physiological needs with a very high priority.

A need, when reflected (focused) on a certain good or service is called a want. Persons develop wants out of needs if they know that a certain good or service exists and believe that this commodity or service can satisfy their needs or does so better than any other commodity or service. Consequently, health education not only has to make persons aware of their needs, but also to convince them of the health-usefulness of certain goods or services in response to their needs. For example, an AIDS control program must convince persons that condoms protect.

[4] This chapter uses, and draws substance from, text provided by Fleßa, Obermann & Marx of Evaplan GmbH, Heidelberg, in March 2008 on the basis of a sub-contract to ILO’s Financial Management component of the HCRP. Part of this text will be published by Fleßa under the title "Costing of health care services" in 2008. Permission was given to make use of the text. Ownership of the text is with Fleßa. The original text was edited by ILO.

A person's wants turn into *demand*:

- if s/he has sufficient purchasing power;
- if the supply (goods or service) is accessible *and* of sufficient quality, and
- if s/he does not consider other commodities or services of priority.

Thus, price, distance and quality, and priority are filters that can prevent wants from becoming demand. As health needs have generally high priority it is sufficient to concentrate on price, distance and quality.

As the individual (or household) has limited income and wealth the price obviously acts as a filter. The higher the price of a certain good or service, the less likely the person in need is able to afford it. The price elasticity is expressed as the ratio

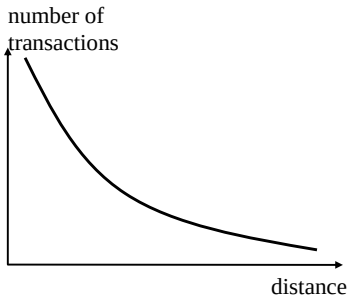
$\varepsilon_p = \frac{dq/q}{dp/p}$, with

ε_p	price elasticity
q	quantity of a good
p	price of a good
dq	marginal change of quantity
dp	marginal change of price

An increase in price usually results in a decrease of the quantity demanded (bought), i.e. some persons among all those wanting a certain good will not buy it; or some among all those with a need for health care services will not be able to afford them. A health insurance is one instrument to reduce the price elasticity. However, there is an elasticity of demand for this policy as the premium is the price of the insurance policy. Consequently, the higher the price of the insurance, the less is the demand for it. [5]

(Spacial) distance is another filter between want and demand. The following figure indicates how the number of transactions between (groups of) individuals might decrease with distance. In reality, the relation depends on various variables, such as individual mobility (infrastructure) or severity of disease.

Chart 2. Possible relation between distance and the number of transactions

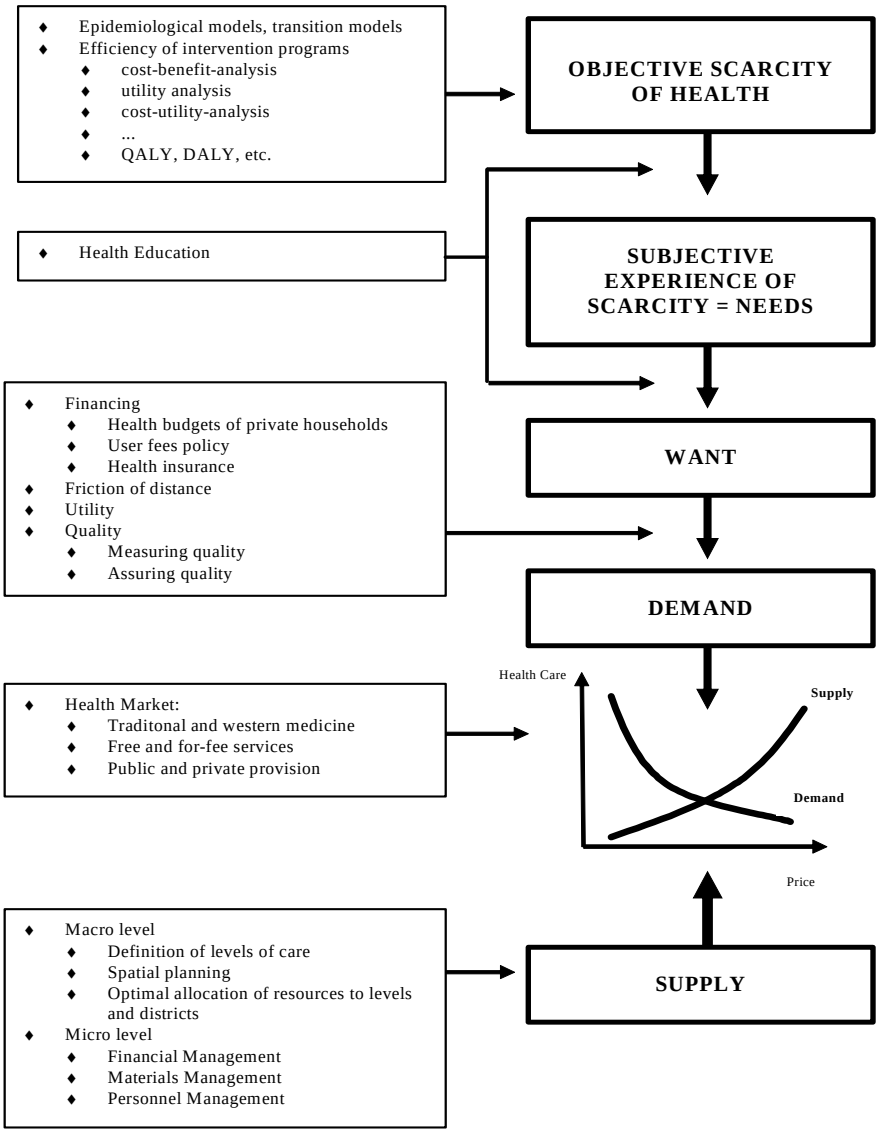


[5] It is the role of health policies (the state) to make health insurance policies accessible to all. One option is to introduce mandated social health insurance.

Furthermore, the quality of health services determines whether wants are being transformed into demand. If quality is insufficient (i.e. does not promise healing) or compares unfavourably to the price, the wanting person will use her/his funds otherwise. Consequently, quality management is a major field of health economics.

Finally, demand meets supply. There are different markets for different levels of health care, in different (spacial) regions, for different groups. It is generally accepted that health care markets differ by their nature from markets for other goods or services. Partly this is owing to the fact that the market for health services does not (even under stylized assumptions) "automatically" converge towards efficient resource allocation as health care services often carry external effects.[6] Also, not every market-solution for health care services is socially acceptable. People usually accept not being in a position to buy rare valuables, like diamonds; but not being able to afford health care services puts basic societal values at risk. As health is usually considered a basic value in its own right, policy (the civil society) must decide to what extent it wishes to influence the health care markets.

Chart 3. Health Economic Framework



[6] For example, if a hospital successfully treats a patient diagnosed with tuberculosis the risk of infection is reduced for many other persons. Consequently, there is a direct societal utility for this treatment.

Consequently, the course starts with the environment and the objective scarcity of health. This includes health systems, problems, reforms and patients (Blocks I and II). The next module addresses general economics as described above and presented in the mainstream literature (Block III). The course then focuses on general management, including financial and personnel management, planning, and accounting (Block IV). Based hereon the course continues with health economics and health care financing while focusing, in Block V, on the role of the insurance schemes and the state. The course further moves towards innovations in health care financing, in particular, insurance. As government as well as insurances are instruments to overcome the price filter, both are seen as partners (Block VI). Finally, we come to tools and instruments, e.g. budgeting (Block VII).

3. Course components

3.1. Block I: Introduction: Health systems, problems and reforms

4 weeks => 4 weeks x 5 days x 3 hours = 60 hours lecture / classes + tutorials

*This block gives a general introduction to health systems. It qualifies the notion system through a short excursion into **systems theory**, offers – on that background – theoretical access to the core characteristics of **health systems**, and provides an overview to health system **problems** and **reform options** and **solutions**.*

1. Introduction: intuitively, what are health systems? 3 hours (1 day)

- Systems (see below: system theory)
- Health Systems
- The components of Health Systems
- The interaction of components of health systems
- Stakeholders of the health system
- A basket of problems and solutions – which, where and why?

Proposed literature / sources – to be confirmed by lecturer:
Cichon, Michael et al: Modelling in Health Care Finance. A Compendium of Quantitative Techniques for Health Care Financing. ILO, Geneva 1999;
http://www.who.int/topics/health_systems/en/;
Annex 1 (Public health on the internet);
McPake, Barbara et. al.: Health Economics. Routledge, London 2002;
McPake, Barbara et. al.: Health Economics. An international perspective. Routledge, London 2007.

2. An introduction to systems theory 9 hours (3 days)

- Definition, history
- Selected fields of systems theory
- Health systems and systems theory
- Theory of dynamic systems and change

Proposed literature / sources – to be confirmed by lecturer:
http://de.wikipedia.org/wiki/Systemtheorie (literature overview), and
http://en.wikipedia.org/wiki/Systems_theory.
This wikipedia entry may exceptionally serve as an introduction and offer further links.

3. Health systems I: basic characteristics 15 hours (5 days)

- A brief history of health systems:
    a. History of health policy: milestones

b. Components and principles of health systems

c. International

d. South-East Asia

- Supply-side approaches to health systems: constructing the industry

  a. Hospitals

  b. Producers of medical appliances and technology

  c. Pharmaceutical industry

  d. Education system

- Demand-side approaches to health systems: earmarking societal income for health finance

  a. Bismarckian solutions

  b. Beveridgean solutions

  c. Self-Pay

  d. Informal solutions (e.g. village savings schemes)

Proposed literature / sources – to be confirmed by lecturer:
http://www.who.int/topics/health_systems/en/;
Annex 1 (Public health on the internet);
Normand, Charles and Axel Weber: Social Health Insurance – A Policy Guidebook. ILO, WHO, 1994;
McPake, Barbara et. al.: Health Economics. Routledge, London 2002;
McPake, Barbara et. al.: Health Economics. An international perspective. Routledge, London 2007.

4. Health systems II: real world examples and problems 15 hours (5 days)

- Main characteristics and problems of the US system
- Main characteristics and problems of selected EU systems
- Main characteristics and problems of Thailand's system:

  a. Access

  b. Equity

  c. Finance

  d. Costs

  e. Providers

  f. Pharmaceutical industry

g. Producers of medical appliances and technology

h. Education

Proposed literature / sources – to be confirmed by lecturer:
http://www.who.int/topics/health_systems/en/;
Annex 1 (Public health on the internet):
Normand, Charles and Axel Weber: Social Health Insurance – A Policy Guidebook. ILO, WHO, 1994;
McPake, Barbara et. al.: Health Economics. Routledge, London 2002;
McPake, Barbara et. al.: Health Economics. An international perspective. Routledge, London 2007.

5. Reform trends *12 hours (4 days)*

- Health policy (national, international)
- Increasing and maintaining coverage
- Defining health (treatment) packages
- Systemizing medical knowledge
- Fostering research
- Global health initiatives; MDGs
- The role of international organisations (WHO, World Bank, USAID, Global Fund, etc.)
- The role of newly emerging foundations and institutions: Gates foundation, GAVI, PEPFAR, etc.
- Mixed financial solutions: contributions, tax, co-payment
    a. Impact of labour markets
    b. VAT
    c. Earmarked taxation
    d. Household income distribution and co-payments

Proposed literature / sources – to be confirmed by lecturer:
Annex 1 (Public health on the internet);
Normand, Charles and Axel Weber: Social Health Insurance - A Policy Guidebook. ILO, WHO, 1994;
McPake, Barbara et. al.: Health Economics. Routledge, London 2002;
McPake, Barbara et. al.: Health Economics. An international perspective. Routledge, London 2007.

6. Wrap-up and test *6 hours (2 days)*

- Day 1: wrap-up (3 hours)
- Day 2: test (3 hours)

3.2. Block II: Patients

4 weeks => 4 weeks x 5 days x 3 hours = 60 hours lecture / classes + tutorials

This block provides an overview – for the region – of population(s) and their diseases; it introduces the concepts of morbidity and mortality, their measurement and interpretation. The block introduces students to the positive knowledge of medical science on diseases and their treatments.

1. Introduction: sociology of patients *3 hours (1 day)*

- Young patients, working patients, old patients
- Patients by income source and income level
- Patients' role in the interdependent system of health finance
    a. "Initiators" of costs and carriers of diseases
    b. Typical cases of out-patients and in-patients
    c. Self-medication
- Number of patients in South-East Asia

Proposed literature / sources – to be confirmed by lecturer:
Annex 1 (Public health on the internet);
WHO;
national and international statistics and studies.

2. Populations *21 hours (7 days)*

- Number and development of populations of countries in the region.
- Structure by age and sex
- Health status, life-styles, life expectancy
- Morbidity and mortality analysis: what do we know about the causes of morbidity and mortality? Sociological, economic, etc., prevalence of disease?
- Morbidity rates and mortality rates
- Quality of Life: DALY, QALY, YLL
- Future health needs
- Focus on South-East Asia

Proposed literature / sources – to be confirmed by lecturer:
United Nations Population Division:
http://www.un.org/esa/population/unpop.htm;
John Wiley & Sons, Inc., Encyclopedia of Statistical Sciences. 2004; http://mrw.interscience.wiley.com; last update: 30 Aug 2007;
WHO: http://www.who.int.

3. Diseases *30 hours (10 days)*

- What does the medical profession know about diseases and their treatments?
- Description of diseases
- Classification of diseases
- Grouping of in-patients
- Managed care of out-patients
- The future of diseases: new (old) diseases (re/dis)appear ?
- AIDS as epidemiological paradigm
- Focus on South-East Asia

Proposed literature / sources – to be further specified, and confirmed, by lecturer: Annex 1 (Public health on the internet).

4. Wrap-up and test *6 hours (2 days)*

- Day 1: wrap-up (3 hours)
- Day 2: test (3 hours)

3.3. Block III: General Economics

4 weeks => 4 weeks x 5 days x 3 hours = 60 hours lecture / classes + tutorials

*All actors in any health system, providers and purchasers especially, are part of the national and international economy. They co-determine economic development but also, more prominently, they depend in their financial development on **general macro-economic developments**. Students are being provided, in this block, with an introduction to the most important economic concepts in theory and practice. Understanding these is a prerequisite for any health system's reasonable financial planning **process**. Especially, students are made to understand the macro-economic variables which are **drivers** of **revenue** as well as **cost** (expenditure) of health systems. Accordingly, this block introduces the **UN System of National Accounts**, which defines GDP and its derivatives; **the labour market balance** and wage and price concepts; **price** and **cost indexes** as used in health economics are given prominent focus; finally, the block touches upon issues of **competition** and effects of **monopolistic** and **monopsonistic** structures in health systems.*

1. Introduction 3 hours (1 day)

- Block I and II provided the demographic, epidemiological and sociological environment of health care systems.
- This block III provides the economic environment of health care systems. Students will understand that a health system must be adjusted to the economic situation of a country or region.
- The block also provides an overview – for the region – of countries' growth experience, wages, prices, etc.; as well as an introduction to national health accounts to the extent possible.

Proposed literature / sources – to be confirmed by lecturer:

WHO (2001): Report of the Commission on Macroeconomics and Health. Geneva;
Eatwell, J.; Milgate, M.; Newman, P. (any edition): The new Palgrave: a dictionary of economics. Oxford;
Bator, F. M. (1958): The anatomy of market failure. The Quarterly Journal of Economics, Vol. 72, S. 351-379;
Samuelson, P. A.; Nordhaus, W. D. (any edition): Economics. Singapore.

2. GDP and derivatives – what is it that is growing out there? 9 hours (3 days)

- SNA
- GDP concept (= output – input), nominal versus real
- Different angles of looking at GDP – identical results
- Productivity and productivity development
- GDP sectoral breakdown
- The health sector, and the pharmaceutical and other health-related industries, in the SNA
- National health accounts (= SNA satellite system)

Proposed literature / sources – to be confirmed by lecturer:

WHO/ICO (1998): Poverty and health: who lives, who dies, who cares? Macroeconomics, Health and Development Series Nr. 28, WHO/ICO. Geneva.
Witter S, Ensor T, Jowett M, Thompson R. 2000. Health Economics for Developing Countries: A practical guide. Macmillan.
Culyer, A. J. (1991b): The economics of health, Vol. II. Hants, Brookfield.
Culyer, A. J. (1991a): The economics of health, Vol. I. Hants, Brookfield.
Berman, P. A. (1997): National health accounts in developing countries: Appropriate methods and recent applications. Health Economics, Vol. 6, S. 11-30.
Getzen, T. E. (1997): Health Economics. New York.
Mooney, G. H. (1998): Economics, medicine and health care. Sussex.
Samuelson, P. A.; Nordhaus, W. D. (any edition): Economics. Singapore.
OECD (2000): A System of Health Accounts. Paris.
http://unstats.un.org/unsd/sna1993/introduction.asp.

3. The labour market balance *9 hours (3 days)*

- Concept
    a. Supply to the labour market: population and labour market participation rates
    b. Demand on the labour market: the number of work places provided by economic institutions (enterprises, state, private households)
    c. Employment in the health sector (health providers): disaggregation
    d. Unemployment
- How to project future employment, future employment in the health sector, and future GDP?
- Using health sector employment forecasts for university (medical education) planning?

Proposed literature / sources – to be confirmed by lecturer:

WHO (2001): Report of the Commission on Macroeconomics and Health. Geneva.
Eatwell, J.; Milgate, M.; Newman, P. (any edition): The new Palgrave: A dictionary of economics. Oxford.
Bator, F. M. (1958): The anatomy of market failure. The Quarterly Journal of Economics, Vol. 72, S. 351-379.
Samuelson, P. A.; Nordhaus, W. D. (any edition): Economics. Singapore.
Scholz, W., Cichon, M., Hagemejer, K.: Social budgeting. ILO/ISSA 2000.
ILO: A financial projection model for the health sector of Thailand. Manual.

4. Wages and prices in the SNA *9 hours (3 days)*

- Wage concepts
    a. Labour costs
    b. Gross / net wages

- Price concepts
    a. Measuring prices of production
    b. Measuring prices of consumption
    c. The role of taxation and transportation costs
- Overview of wage and price developments in the S.E. Asian region, including those in the health sectors.

Proposed literature / sources – to be confirmed by lecturer:
United Nations: System of National Accounts 1993, http://unstats.un.org/unsd/sna1993/introduction.asp and links provided on that web-page;
ILO: A financial projection model for the health sector of Thailand. Manual.

5. Price and cost indexes — 15 hours (5 days)

- Prices at level of institutions' "delivery of goods / services"
    a. CPI: prices on consumer markets
    b. PPI: prices before delivery (transportation) to consumer markets
- Costs at level of institutions' level of "procurement"
- Overview of price concepts used in the S.E. Asian region.

Proposed literature / sources – to be confirmed by lecturer:
WHO (2001): Report of the Commission on Macroeconomics and Health. Geneva.
Eatwell, J.; Milgate, M.; Newman, P. (any edition): The new Palgrave: A dictionary of economics. Oxford.
Bator, F. M. (1958): The anatomy of market failure. The Quarterly Journal of Economics, Vol. 72, S. 351-379.
Samuelson, P. A.; Nordhaus, W. D. (any edition): Economics. Singapore.
United Nations: System of National Accounts 1993: http://unstats.un.org/unsd/sna1993/introduction.asp.
ILO: A financial projection model for the health sector of Thailand. Manual.

6. Cost / price effects of monopolistic structures in the health (supply) industries — 9 hours (3 days)

- Forms of markets (competition, monopolies, etc.)
- Reasons, advantages and disadvantages of monopolies
- Economic price theory of monopolies
- Monopolistic structures in the health industry and related industries in the S.E. Asian region
- Monopolistic competition
- Free market: an option for the health sector?

Proposed literature / sources – to be confirmed by lecturer:

WHO (2001): Report of the Commission on Macroeconomics and Health. Geneva.
Eatwell, J.; Milgate, M.; Newman, P. (any edition): The new Palgrave: A dictionary of economics. Oxford.
Bator, F. M. (1958): The anatomy of market failure. The Quarterly Journal of Economics, Vol. 72, S. 351-379.
Samuelson, P. A.; Nordhaus, W. D. (any edition): Economics. Singapore.

7. Wrap-up and test *6 hours (2 days)*

- Day 1: wrap-up (3 hours)
- Day 2: test (3 hours)

3.4. Block IV: Provider management

4 weeks => 5 weeks x 5 days x 3 hours = 75 hours lecture / classes + tutorials

*In this block students receive an in-depth introduction to the management of health care systems, health care institutions and insurance schemes. One focus is on the **organization and management** of health providers in theory and in South-East Asia in practice; provider **legislation** in South-East Asia; **financial recording**; provider **effectiveness** and **investment** into providers and their maintenance. By the end of this block students should have a full overview of the basic principles of personnel, materials and financial management in the South-East Asian region, and be able to name organizational and financial deficiencies and problems.*

1. Introduction *3 hours (1 day)*

- The major institutions on the supply side of the health care system (nurses, doctors, dispensaries, health centers, hospitals, pharmaceutical industry, medical equipment companies, insurance schemes, government, etc.)
- Providers' role in the interdependent system of health finance
- Providers in the South-East Asian region
- This block also provides an overview – for the region – of the available providers, their underlying legislation, their effectiveness in treating patients.

Proposed literature / sources – to be confirmed by lecturer:

Massie, J. L.: Essentials of Management. Prentice-Hall, New Jersey.
Coventry, W.; Barker, J.: Management Made Simple. Made Simple Books, Heimann, London.
Appleby, R. C.: Modern Business Administration. ELBS Low-priced edition, Pitman, London.
Wood, F.: Business Accounting, I. Pitman, London.

2. Essentials of management *15 hours (5 days)*

- Overview of management principles
- Planning and Control
- Organisation
- Staffing
- Motivation and Directing

3. Essentials of materials management *6 hours (2 days)*

- Purchase
- Storage
- Optimizing logistics

4. Essentials of personnel management *9 hours (3 days)*

- The role of the leader
- Leadership and personality
- Change management and management development

5. Financial management *15 hours (5 days)*

- Purpose and overview of accounting
- Essentials of double-entry bookkeeping and financial accounts
- Recording revenues
- Recording expenses (labour, procurement, etc.)
    a. Departmental disaggregation
    b. Functional disaggregation
    c. In-patients versus out-patients
- Billing patients' treatments
- Constructing Diagnosis Related Groups
- Billing managed care
- Requirements for the exchange of information with purchasers (and / or patients)
- Impact of provider payment system (capitation / fee-for-service, DRG-re-imbursement) on operations recording system
- Assessment of financial recording in South East Asia

6. Hospital management *6 hours (2 days)*

- Running and maintaining the hospital
    a. Help Desk
    b. Registration
    c. Medical Records
    d. Billing services
    e. Procurement of goods and services
    f. Financial Accounting
    g. Investments
    h. Fixed Assets
    i. Payroll

j. Labour relations

- Managing patients

k. Outpatients

l. Inpatients

- The hospital services

m. Pharmacy

n. General Store & Inventory

o. Laboratory

p. Radiology

q. Nuclear Medicine

r. Physiotherapy

s. Dental services

t. Other services

- Special hospitals: university, military, accident hospitals
- Number and development over time of

u. Hospitals, size, specialization, etc.

v. Doctors, family doctors, specializations, etc., in S.E. Asia: the fundamental facts.

- How many hospitals are being built annually, private versus public?
- Number of beds, special (high-tech) equipment, etc.
- Is there an economically feasible minimum hospital size?
- Comparison between countries and international comparison
- Future needs, in relation to Block I: future diseases => future providers

7. Provider legislation in S.E. Asia *6 hours (2 days)*

- Scope, Limitations, and Rules governing the services (allowed to be) offered.
- Historical development of legislation
- Comparison between countries
- Future improvements?

8. Provider effectiveness *6 hours (2 days)*

- How to measure effectiveness?
- What is successful treatment?
- Treatment versus non-treatment: ethical and economic issues
- What do we know about provider effectiveness?
- Legislation on provider effectiveness?

9. Investing in providers and provider maintenance *3 hours (1 day)*

- Who decides on building new hospitals, dismantling old ones, renovations, etc.
- Investments in education and research
- How many new doctors are educated every year?
- Who educates the doctors?
- Who defines the syllabi?
- Is there legislation on the education and ethics of medical staff?
- International cooperation ("openness") of S.E. Asian providers with the rest of the world: international associations, cooperation programmes, etc

10. Wrap-up and test *6 hours (2 days)*

- Day 1: wrap-up (3 hours)
- Day 2: test (3 hours)

3.5. Block V: Health Economics – the role of the purchasers

4 weeks => 4 weeks x 5 days x 3 hours = 60 hours lecture / classes + tutorials

In this block students receive an in-depth introduction to the speciality of health care markets with all elements. The focus is on the role of purchasers[7]*, i.e. insurance schemes and the state.*

1. Introduction *3 hours (1 day)*

- Specialities of health economics: market failure, product, evaluation of results (including quality of life).
- The role of secondary customers (State, social insurance, private insurance, patients)
- Explaining the functioning of the (financial) institutions: centralized and decentralized solutions
- This block provides overview – for the region – of the exceptionalities of the health care market, including the need of state regulation and external financial support to overcome the filter between want and demand.

Proposed literature / sources – to be confirmed by lecturer:

WHO (2001): Report of the Commission on Macroeconomics and Health. Geneva.
WHO/ICO (1998): Poverty and health: who lives, who dies, who cares? Macroeconomics, Health and Development Series Nr. 28, WHO/ICO. Geneva.
Witter S, Ensor T, Jowett M, Thompson R. 2000. Health Economics for Developing Countries: A practical guide. Macmillan, 296 pages.
Arrow, K. J. (1963): Uncertainty and the welfare economics of medical care. American Economic Review, Vol. 5, S. 941-969.
Culyer, A. J. (1991b): The economics of health, Vol. II. Hants, Brookfield
Culyer, A. J. (1991a): The economics of health, Vol. I. Hants, Brookfield
Easterlin, R. A. (1987): Fertility. Eatwell, J.; Milgate, M.; Newman, P. (Eds.): The new Palgrave: A dictionary of economics. Oxford, S. 302-308
Bator, F. M. (1958): The anatomy of market failure. The Quarterly Journal of Economics, Vol. 72, S. 351-379.
Berman, P. A. (1997): National health accounts in developing countries: appropriate methods and recent applications. Health Economics, Vol. 6, S. 11-30.
Berman, P. (1995): Health sector reform in developing countries. Boston.
Getzen, T. E. (1997): Health Economics. New York.
Becker, G. W.; Barro, R. J. (1988): A reformulation of the economic theory of fertility. Quarterly Journal of Economics, Vol. 103, No. 1, S. 1-25.
Mills, A. (1983): Economic aspects of health insurance. Lee, K.; Mills, A. (Eds.): The economics of health in developing countries. Oxford, S. 64-88.
Jack, W. (1999): Principles of health economics for developing countries. Washington D. C.
Mooney, G. H. (1998): Economics, medicine and health care. Sussex.
Samuelson, P. A.; Nordhaus, W. D. (1985): Economics. Singapore.
International Monetary Fund: Monetary and Financial Statistics Manual. October 20, 2000. http://www.imf.org/external/pubs/ft/mfs/manual/index.htm.

[7] The literature also uses the notion *secondary customers*.

International Monetary Fund: Manual on Fiscal Transparency. Fiscal Affairs Department. Washington D.C., 2001.
ILO: A financial projection model for the health sector of Thailand. Manual.

2. Economic Evaluation *6 hours (2 days)*

- Measuring health care results: output, outcome, impact
- Instruments (CBA, UA, CUA, CBA)
- Quality of Life (review, see before)

3. Health purchasers in S.E. Asia *12 hours (4 days)*

- Number, scope and development over time of
    a. Public and private purchasers
    b. Membership (covered / contributors, beneficiaries (patients))
    c. Comparison with general economic development
    d. Comparison among countries
- Future needs, in relation to Blocks I and II: future diseases, future number and type of providers

4. Purchaser legislation in S.E. Asia *6 hours (2 days)*

- Scope, limitations, and rules governing the services (allowed to be) paid for.
    a. Scope I: legally covered benefits, goods and services
    b. Scope II: legally covered population
    c. Limitations: explaining the legal boundary between covered and non-covered services (scope I) and covered and non-covered population (scope II)
- Regional overview and specificities
- Historical development of legislation
- Comparison between countries
- Present discussion? Future improvements?

5. Purchaser financial recording *15 hours (5 days)*

- Based on the general accounting principles, the accounting procedures for governments and insurance schemes are discussed, e.g.

a. Recording revenues

b. Recording expenses

c. Controlling revenue

d. Controlling expenses

e. Essentials of cost accounting (pricing, marginal contribution accounting)

f. Requirements for the exchange of information with providers (and / or with patients)

g. Legislation on financial recording

h. Impact of provider payment systems: capitation versus fee-for-service versus reimbursement of DRGs

6. Purchaser governance *12 hours (4 days)*

- Main purchaser purpose: Serving members at minimum waste of resources
- Organization of typical health purchasers
  a. On the “expenditure side”: facing providers and /or patients
  b. On the “revenue side”: facing employers (contributors) and / or Ministry of Finance
- Financial recording system: correctly documenting purchasers' internal treatments and administrative processes
- Legislation on financial recording: clear?
- Drugs positive lists
- Differences between private and public, voluntary and mandated solutions
- Links between purchaser, legislator, government and the general public: lobbying interests properly
- Privatisation of public purchasers?
- Competition between public and private purchasers?
- Sharing the cake among public and private purchasers?

7. Wrap-up and test *6 hours (2 days)*

- Day 1: wrap-up (3 hours)
- Day 2: test (3 hours)

3.6. Block VI: Innovations of health care financing

4 weeks => 18 days x 3 hours = 54 hours lecture / classes + tutorials

Based on the general concept of health economics, this block introduces some innovations of health care financing in the South-East Asian region. It starts with an in-depth analysis of existing problems of health care financing systems, e.g. conflicting financial interest *of players. Students are introduced to such* provider payment systems, *and their characteristics, in the second component of this block, theoretically as well as to South-East Asian practice. Students' knowledge has to be complemented with* provider costs *and* revenue, *and purchaser costs and revenue in general. Provider and purchaser finance cannot be fully understood without discussing* their integration with and dependency on general government finance, *which is addressed in the final part of this block.*

1. Introduction *3 hours (1 day)*

- Review of payment systems in different societies, e.g. fee-for-service, capitation systems or systems that do not reimburse single-treatment fees but grouped (medically logic) treatments (technically, often, DRGs)

- This block provides an overview – for the region – of the prevailing systems, their underlying legislation, and their actual or potential regulative impacts on health costs.

Proposed literature / sources – to be confirmed by lecturer:

WHO (2001): Report of the Commission on Macroeconomics and Health. Geneva.
WHO/ICO (1998): Poverty and health: who lives, who dies, who cares? Macroeconomics, Health and Development Series Nr. 28, WHO/ICO, Geneva.
Witter S, Ensor T, Jowett M, Thompson R. (2000): Health Economics for Developing Countries: A practical guide. Macmillan, 296 pages.
Arrow, K. J. (1963): Uncertainty and the welfare economics of medical care. American Economic Review, Vol. 5, S. 941-969.
Culyer, A. J. (1991a): The economics of health, Vol. I. Hants, Brookfield.
Culyer, A. J. (1991b): The economics of health, Vol. II. Hants, Brookfield.
Easterlin, R. A. (1987): Fertility. Eatwell, J.; Milgate, M.; Newman, P. (Eds.): The new Palgrave: A dictionary of economics. Oxford, S. 302-308.
Bator, F. M. (1958): The anatomy of market failure. The Quarterly Journal of Economics, Vol. 72, S. 351-379.
Berman, P. A. (1997): National health accounts in developing countries: appropriate methods and recent applications. Health Economics, Vol. 6, S. 11-30.
Getzen, T. E. (1997): Health Economics. New York.
Becker, G. W.; Barro, R. J. (1988): A reformulation of the economic theory of fertility. Quarterly Journal of Economics, Vol. 103, No. 1, S. 1-25.
Mills, A. (1983): Economic aspects of health insurance. Lee, K.; Mills, A. (Eds.): The economics of health in developing countries. Oxford, S. 64-88.
Jack, W. (1999): Principles of health economics for developing countries. Washington D. C.
Mooney, G. H. (1998): Economics, medicine and health care. Sussex.
Schieber, G. J. (1997): Innovations in health care financing. Washington DC.
Preker, A. S.; Harding, A. (2003): Innovation in health service delivery. Washington D.C.

2. Provider payment systems – general overview and manifestation in S.E. Asia *24 hours (8 days)*

- Fee-for-service schemes; concept and prevalence in S.E. Asia
- Community Based Insurance Schemes; concept and prevalence in S.E. Asia
- Social Insurance Schemes; concept and prevalence in S.E. Asia
- Payment Mechanisms:
    a. Capitation, concept and prevalence in S.E. Asia
    b. DRG-reimbursement systems (fee-for-DRG)
    c. Managed Care
- The way ahead: future developments in S.E. Asia

3. Purchaser expenditure and revenue *15 hours (5 days)*

- Expenditure types (fiscal accounting)
- Expenditure drivers
- Revenue types and their drivers
- Legislation on financial recording
- Impact of provider payment systems: capitation versus fee for service versus re-imbursement of DRGs

4. The role of the State *6 hours (2 days)*

- Governmental, nongovernmental, non-profit, for-profit organisations
- Different roles of the state
    a. Liberal approach
    b. Legislation
    c. Direct links through budget subsidy
    d. Government as lender / subsidizer of last resort
    e. Indirect links through taxation
    f. Budgetary implications for general government
    g. Disposable income implications for private households and / or enterprises

5. Wrap-up and test *6 hours (2 days)*

- Day 1: wrap-up (4 hours)
- Day 2: test (4 hours)

3.7. Block VII: Tools and instruments – budgeting and cost control

4 weeks => 4 weeks x 5 days x 3 hours = 60 hours lecture / classes + tutorials

*The final block pulls the strings of all previous blocks together. Students are expected to apply managerial tools, such as projecting the **budgets** of **providers** (hospitals) and **purchasers** according to internationally accepted and binding standards, and to balance out both actors' financial interests **through practical application of the generic health projection model as developed by the ILO**.*

1. Introduction *3 hours (1 day)*

- This block is the «final goal» of the overall course: providing students with the background information required to apply managerial tools, in particular to make «reasonable» projections of the finance of providers and purchasers.

- This block also provides an overview – for the region – of countries' projection / budgeting experience, to the extent possible.

Proposed literature / sources – to be confirmed by lecturer:

Scholz, Wolfgang, Cichon, M., Hagemejer, K.: Social budgeting. ILO/ISSA 2000.
Cichon, Michael et al: Modelling in Health Care Finance. A Compendium of Quantitative Techniques for Health Care Financing. ILO, Geneva 1999.
ILO: A financial projection model for the health sector of Thailand. Manual.
Meyers, Roy T.: Handbook of Government Budgeting. Jossey-Bass Publishers. San Francisco 1999.
International Monetary Fund: Monetary and Financial Statistics Manual. October 20, 2000. http://www.imf.org/external/pubs/ft/mfs/manual/index.htm

2. Managerial tools: an overview *9 hours (3 days)*

- Planning tools: Gantt diagrams, CPM, MPM, simple models of forecasting and decision making

- Costing tools: review of cost accounting tools (see block IV), e.g. break-even-analysis, budgeting

- Personnel management tools: personnel roster, leave schedule, staff appraisal

- Quality management tools: flow charts, check lists

3. Provider finance *9 hours (3 days)*

- Projecting revenue and costs / expenses of a hospital

  a. Assumption setting

  b. Required information

- The budgeting process; linking up with purchasers

- Legal requirements and framework

Proposed literature / sources – to be confirmed by lecturer:

Scholz, Wolfgang, Cichon, M., Hagemejer, K.: Social budgeting. ILO/ISSA 2000.
Cichon, Michael et al: Modelling in Health Care Finance. A Compendium of Quantitative Techniques for Health Care Financing. ILO, Geneva 1999.
ILO: A financial projection model for the health sector of Thailand. Manual.

4. Purchaser finance 9 hours (3 days)

- Projecting revenue and costs / expenses of health insurance
    a. Assumption setting
    b. Required information
- The budgeting process; linking up with providers and government, contributors
- Legal requirements and framework

Proposed literature / sources – to be confirmed by lecturer:

Scholz, Wolfgang, Cichon, M., Hagemejer, K.: Social budgeting. ILO/ISSA 2000.
Cichon, Michael et al: Modelling in Health Care Finance. A Compendium of Quantitative Techniques for Health Care Financing. ILO, Geneva 1999.
ILO: A financial projection model for the health sector of Thailand. Manual.

5. Methods of quality control of projections 6 hours (2 days)

- Concepts
- Using results for budgeting improvements

Proposed literature / sources – to be confirmed by lecturer:

Scholz, Wolfgang, Cichon, M., Hagemejer, K.: Social budgeting. ILO/ISSA 2000.
Cichon, Michael et al: Modelling in Health Care Finance. A Compendium of Quantitative Techniques for Health Care Financing. ILO, Geneva 1999
ILO: A financial projection model for the health sector of Thailand. Manual.

6. Practical application: The generic version of the Thai health budgeting model 18 hours (6 days)

Source: ILO: A financial projection model for the health sector of Thailand. Manual.

7. Wrap-up and test 6 hours (2 days)

- Day 1: wrap-up (3 hours)
- Day 2: test (3 hours)

3.8. A financial projection model for the health sector of Thailand

The teaching model will be made available during the course once students are considered familiar with minimum health system knowledge and understanding required for using the model. Students' familiarity with technical model use will be acquired during tutorials accompanying the course.

This chapter serves as a preliminary description, in rough strokes, of the philosophy and design of the teaching model.

Core philosophy of the teaching (generic) model

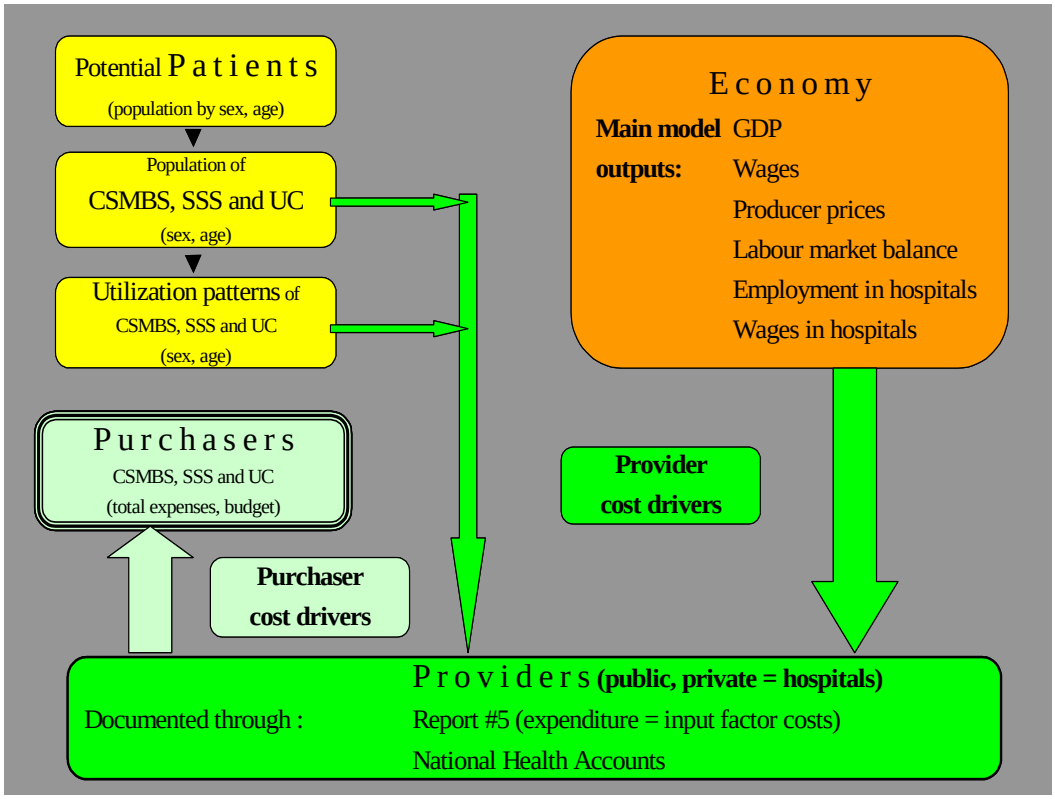
The core model philosophy is based on the observation that health systems, with respect to their financial operations, usually consist of providers and purchasers; this includes the systems in Thailand and, more generally, in South-East Asia. Providers and purchasers are being nested into their common and partially differing demographic and economic environments; on that basis the model maps the expenses (and revenues) of hospitals (providers) *and* of the purchasers, i.e. of state and/or insurance and/or private households – depending on concrete societal arrangement. The purpose of the model is to provide students with insights into the practical use of an instrument that allows reasonable projection of health expenses from t to t+1. "Cost drivers" are being used in the model on both the *supply side and the demand side* of the health system. Drivers on the supply side are (i) the input volumes required for the production (production function) of goods and services purchased by the providers (hospitals) and (ii) the price developments of these inputs; drivers on the demand side are (iii) the covered population and (iv) their utilization of the system. The volumes of some of the inputs on the supply side (see (i), above) depend on utilisation, i.e. on demand side developments (see (iii) and iv).

In its institutional details, the generic model structure will reflect the situation in Thailand (see below). Advantage will be taken from the fact that Thailand's system comprises, on the demand side, different schemes that can typically also be found in other countries, including in developed countries, and on the supply side is characterized by public and private hospitals (only) – a situation, that, again, can be found in many countries, especially also in South-East Asia. In short, the didactical capacity of Thailand's case can be considered high. Therefore, reference in the following is made to CSMBS, SSS, UC, NHA (IHPP) and to the specific Thai situation of hospitals' cost recording; such references will be anonymised in the generic model.

Thailand's case as reference for the generic model

The following Chart reflects the generic model structure.

Chart 4. Design structure of the generic health model



Source: ILO 2007.

Basically, the model design starts from the observation that a number of providers' (hospitals') input cost components are not under the control of the purchasers (CSMBS, SSS, UC) but determined independently of them. For example, such cost components are labour costs, which are not determined in negotiations with the purchasers but, in the case of public hospitals, by the Thai government, and in the case of private hospitals by other, e.g. market forces. Similarly, costs such as electrical energy (air conditioning, light) and depreciations may be relatively independent from actual demand. The drivers for these input costs are being generated by the economic model (see right side of Chart 4).

At the same time, providers incur demand-induced costs through the intensity with which members of CSMBS, SSS and UC make use of the hospitals. Clearly, one can assume that the amount of drugs and medical appliances used in hospitals is highly and positively correlated with the number of contacts (admissions). The same holds true for the use of water and other, similar input goods and services. The intensity of usage of the hospital system through the members of the different purchasing schemes is generated through a demography (i.e. population)-based approach on the demand side, i.e. through the estimation and projection of utilization rates by sex and age (see left side of Chart 4).

While the demand side is being modelled specifically and separately for each scheme, the supply side cost drivers are assumed to be the same for all purchasers as, in principle, they all contract with the same public and private hospitals.

Special attention is given to the fact that the public purchasers (CSMBS, SSS, UC) only cover about one half of the total expenses on health (= total costs of the health system) in Thailand. In other words, projecting the expenses of these three institutions "misses" a substantial part of Thailand's overall health system. For this reason, there is a fourth model

component (the other three: CSMBS, SSS, UC), which aims at estimating the non-public costs of the system. The statistical base are the NHAs. As there is no significant statistical information on Thailand's private sector providers available the modelling approach is to analyze the NHAs net of the public sector, and to undertake time series analysis in relation to nominal GDP developments, or one or several of its demand components. Such analysis provides for elasticities, statistically of varying significance, which allow for projections of the non-public health expenses on the basis of GDP projections.

The teaching model is "generic" in the sense that it originally relates specifically to the Thai country case but has been sufficiently anonymized such that its use can be understood to reflect "any" country case.

4. Coordination with Naresuan University, Phitsanulok, Thailand

By the nature of academic teaching at universities, in general, this report can only be a proposal for the actual teachings to be implemented. It is assumed and hoped that the contents of this report serves as a useful guideline, and – ideally – a first reference, for the teachers who will eventually be implementing and carrying out the course. Evidently, final responsibility for the content and structure of all teaching will lie with the teachers.

Nevertheless, the course outline offered in this report tries to be as close to the needs and requirements of teaching this type of course ***in*** the South-East Asian region ***for*** the South-East Asian region. We judge that it provides a useful structure for writing the course books.

In order to achieve this goal, overall course content was discussed several times with the national Director of the Thai-EU HCRP, Dr Thaworn Sakunphanit and, equally, with Dr Supasit Pannarunothai, Director, NU-MoF and NU Hospital and his assistants; Dr Viroj Tangcharoensatien, Director of IHPP, also contributed to the discussions.

Development of the course design profited considerably from an increasingly improved understanding of the principle and practical design – as well as related problems – of Thailand's overall health system during implementation of the ILO component of the Thai-EU HCRP during 2006 and 2007. Not least, Mr Jean Claude Hennicot's[8] systematic spread-out of the data base of Thailand's health system, undertaken in the second half of 2007, including the many technical discussions between him and the project manager of the ILO component under the HCRP, contributed significantly to a better understanding of the Thai health system, and health systems in general. The result of many of these discussions have been incorporated in this report.

[8] Consulting actuary under the ILO component of the HCRP.

5. Master course cost estimations

Two alternative course cost estimations have been made. [9]

The first costing is contained in Table 1, below. This costing must be considered "conservative" in the sense that it tries to take into account all costs at their "high" side. The result may be considered providing estimates which are of an "envelope nature", i.e. it could be expected that, in reality, these costs may turn out lower.

The other costing (Table 2, below) is based on less costly assumptions:

- the unit costs for national teachers is reduced by 33 per cent (from 1500 to 1000 Baht);
- no rent for teaching and common rooms will be charged;
- the costs for computers etc, which, in Table 1 are being calculated at their replacement costs (procurement of new equipment is assumed in Table 1), are, in Table 2, calculated at their annual write-off; in other words, it is assumed that existing equipment can be made available to the course.

Under Table 2, total costs are 40 per cent lower than under the calculations in Table 1.

In both cases, the calculated amounts in terms of Euro and USD depend, of course, on the assumed exchange rates. As is well known, exchange rate projections do have their own specific risks.

Explanation is required with respect to the lines "TOTAL costs of master course" and "TOTAL costs at 55 per cent allocation to University".

The line "TOTAL costs of master course" provides an estimate (in both tables) of the expected total course costs. These are calculated on the basis of the expected input costs. Administrative rules of NU stipulate however that, of each course fee paid by students, 55 per cent go towards general NU administration, to cover all course 'overhead' costs, so to speak (library, maintenance of buildings and compound, investments, etc.).

In order to take account of this rule, while understanding that the NU-FoM will actually have to cover the "TOTAL costs of master course" it must be assumed that the costs of NU-FoM represent only 45 per cent of overall costs. In other words, the "TOTAL costs at 55 per cent allocation to University" have been calculated by dividing "TOTAL costs of master course" by the factor 0.45.

One basic financial risk and one structural financial problem have to be solved before the course can get started.

[9] I am grateful to Mr Kanchit Sooknark, Faculty of Business Administration, NU, to Dr Thaworn Sakunphanit, National Director of the Thai-EU HCRP, and to Dr Supasit Pannarunothai, Director, NU-MoF and NU Hospital, for their readiness to discuss details, and for their support in terms of the provision of detailed information.

Basic financial risk

The financial risk stems from the fact that the course costs and, thus, the course fee to be paid by students, have to be based on an explicit assumption of the number of enrolling and paying students. For the calculations under both tables it was assumed that 20 students pay. Under this assumption, each additional student paying would ease the financial situation. Problems occur if a lower number of students enrols and pays. NU-MoF might be able to cover losses, out of its own reserves, to the order of two to four less students than expected paying. However, in a situation where only 10 students pay instead of the expected 20, losses might not be bearable anymore – putting NU-MoF's financial position at risk. In this case, the only option NU-MoF would have would be to cancel the course. However, as the proposed course is a new course it should be given some time to be established in the region; i.e. there is good reason to opt for a strategy that allows for less than 20 students over an initial period of two to three years, assuming that numbers of enrolling and paying students might stabilize at around the 20-participant level following that initial period.

The financial risk for NU-MoF in the situation where only 10 students might enrol and pay, has been estimated as follows:

Under the set of assumptions of Table 1:

			Baht	Euro	USD
Risk, if	50%	of expected students come:	2,483,750	49,675	70,964
	25%		3,725,625	74,513	106,446
	75%		1,241,875	24,838	35,482

Under the set of assumptions of Table 2:

			Baht	Euro	USD
Risk, if	50%	of expected students come:	1,492,750	29,855	42,650
	25%		2,239,125	44,783	63,975
	75%		746,375	14,928	21,325

In the case of Table 1, NU-MoF loses around 1.24 million Baht for each group of 5 students not enrolling; in the situation in Table 2, this number is 0.75 million Baht.

This risk must be covered before the course can be advertised. It is thus proposed here that NU-MoF should seek external commitment to this risk coverage to the order of between 1.5 million Baht (50 per cent -case of Table 2) and 2.5 million Baht (50 per cent -case of Table 1). External commitment could be assumed by the Thai government (Ministry of Education; Ministry of Health; Ministry of Foreign Affairs), or by external donors (World Bank; Asian Development Bank; national donors).

Structural financial problem

The structural financial problem to be solved is the enormously high charge of NU, which, in effect, burdens the course with a tax rate of more than 120 per cent. If these costs would actually have to be covered by student fees, then fees would reach prohibitive levels in the order of between 6,600 Euro (Table 2) and 11,000 Euro (Table 1). In this financial setting it cannot be expected that the course will ever take place. In other words, it is strongly suggested that NU-MoF negotiate either with NU to aim at a waiver of the "55 per cent rule", or with other institutions (government) to aim at the external coverage of these costs.

Table 1. Conservative COSTING of the Master Course in Health Security Management (ANNUAL)

Item	Cost per unit			Units	Dimension	Total annual costs		
	Baht	Euro	USD			Baht	Euro	USD
1. Labour cost						**2819500**	**56390**	**80557**
– Domestic lecturers (fee)	1500	30.00	42.86	520	Hours	780000	15600.00	22285.71
– Travel cost for domestic lecturers	10000	200.00	285.71	7	Persons	70000	1400.00	2000.00
– Foreign lecturers (fee) (15 days per course)	8000	160.00	228.57	60	Days	480000	9600.00	13714.29
– Travel costs for foreign lecturers (business)	175000	3500.00	5000.00	4	Ret. tick's	700000	14000.00	20000.00
– Accommodation*)	1200	24.00	34.29	120	Days	144000	2880.00	4114.29
– Officer staff (1 year)	20000	400.00	571.43	12	Months	240000	4800.00	6857.14
– Committee fee for defence proposal	1275	25.50	36.43	20	Students	25500	510.00	728.57
– Thesis advisor fee	11000	220.00	314.29	20	Students	220000	4400.00	6285.71
– Committee fee for thesis defence	8000	160.00	228.57	20	Students	160000	3200.00	4571.43
2. Students						**664000**	**13280**	**18971**
– Bag	500	10.00	14.29	20	Students	10000	200.00	285.71
– Shirt	400	8.00	11.43	20	Students	8000	160.00	228.57
– Textbook	8000	160.00	228.57	20	Students	160000	3200.00	4571.43
– Orientation	1500	30.00	42.86	20	Students	30000	600.00	857.14
– Graduate ceremony	1500	30.00	42.86	20	Students	30000	600.00	857.14
– Sheets	2000	40.00	57.14	8	Courses	16000	320.00	457.14
– Study visits	50000	1000.00	1428.57	4	Courses	200000	4000.00	5714.29
– Seminar	30000	600.00	857.14	7	Courses	210000	4200.00	6000.00
3. Capital and material						**1484000**	**29680**	**41840**
– Lecture room per year	7200	144.00	205.71	60	m2	432000	8640.00	12342.86
– Common room per year	7200	144.00	205.71	60	m2	432000	8640.00	12342.86
– Computer and printers	30000	600.00	857.14	20	Number	600000	12000.00	17142.86
– Incidentals						20000	400.00	11.43
TOTAL costs	**of master course**					**4,967,500**	**99,350**	**141,369**
	at 55 % allocation to University					11,038,889	220,778	314,152

*) If accommodation is provided to ILO teachers the fee (DSA) can be reduced accordingly.

Students	**20**	**Fee per student:**	**Baht**	**248,375**
			Euro	**4,968**
			USD	**7,096**

Estimation as of November 2007.

Table 2. Alternative COSTING of the Master Course in Health Security Management (ANNUAL)

Item	Cost per unit			Units	Dimension	Total annual costs		
	Baht	Euro	USD			Baht	Euro	USD
1. Labour cost						**2559500**	**51190**	**73129**
– Domestic lecturers (fee)	1000	20.00	28.57	520	Hours	520000	10400.00	14857.14
– Travel cost for domestic lecturers	10000	200.00	285.71	7	Persons	70000	1400.00	2000.00
– Foreign lecturers (fee) (15 days per course)	8000	160.00	228.57	60	Days	480000	9600.00	13714.29
– Travel costs for foreign lecturers (business)	175000	3500.00	5000.00	4	Ret. tick's	700000	14000.00	20000.00
– Accommodation*)	1200	24.00	34.29	120	Days	144000	2880.00	4114.29
– Officer staff (1 year)	20000	400.00	571.43	12	Months	240000	4800.00	6857.14
– Committee fee for defence proposal	1275	25.50	36.43	20	Students	25500	510.00	728.57
– Thesis advisor fee	11000	220.00	314.29	20	Students	220000	4400.00	6285.71
– Committee fee for thesis defence	8000	160.00	228.57	20	Students	160000	3200.00	4571.43
2. Students						**286000**	**5720**	**8171**
– Bag	500	10.00	14.29	20	Students	10000	200.00	285.71
– Shirt		0.00	0.00	20	Students	0	0.00	0.00
– Textbook		0.00	0.00	20	Students	0	0.00	0.00
– Orientation	1500	30.00	42.86	20	Students	30000	600.00	857.14
– Graduate ceremony	1500	30.00	42.86	20	Students	30000	600.00	857.14
– Sheets	2000	40.00	57.14	8	Courses	16000	320.00	457.14
– Study visits & Seminar	50000	1000.00	1428.57	4	Courses	200000	4000.00	5714.29
– Seminar		0.00	0.00	7	Courses	0	0.00	0.00
3. Capital and material						**140000**	**2800**	**3440**
– Lecture room per year	0	0.00	0.00	60	m2	0	0.00	0.00
– Common room per year	0	0.00	0.00	60	m2	0	0.00	0.00
– Depreciation furniture, computers, etc. (5 yrs)	6000	120.00	171.43	20	Number	120000	2400.00	3428.57
– Incidentals						20000	400.00	11.43
TOTAL costs	**of master course**					**2,985,500**	**59,710**	**84,740**
	at 55 % allocation to University					6,634,444	132,689	188,311

*) If accommodation is provided to ILO teachers the fee (DSA) can be reduced accordingly.

Students 20	**Fee per student:**	**Baht**	**149,275**
		Euro	**2,986**
		USD	**4,265**

Estimation as of November 2007.

Annex 1. Public health on the internet

The original source of the following compilation of web links concerning public health can be found at the following web-site of the Universität München:

http://bfv.web.med.uni-muenchen.de/phlinks.html

(Bayerischer Forschungsverbund Public Health – Oeffentliche Gesundheit [Bavarian Research Network Public Health]). The original source was adjusted to the needs of this course, as some of the sites were not available anymore at the time when this report was written; also, some sites only related to information in German which was thus omitted. At the time of the original drafting of this report (November 2007) all sites listed were actually accessible.

Epidemiology

WWW Virtual Library: Epidemiology http://www.epibiostat.ucsf.edu/epidem/epidem.html

Epidemiology Supercourse: Annual Report 101
http://www.pitt.edu/~super1/lecture/lec0831/index.htm. Charles I. Vukotich, Jr., Allegheny County Health Department, Pennsylvania, USA, provides lecture describing annual report of local health department.

Lectures

A list of lectures http://www.pitt.edu/~super1/main/index.htm

Epidemiology of Human-Animal Interactions: Part I Zoonotic Diseases
http://www.pitt.edu/~super1/lecture/lec0302/index.htm

Influenza: Epidemiology, Prevention, and Control
http://www.pitt.edu/~super1/lecture/lec0652/index.htm

Epidemiology of Diabetes Complications I,
http://www.pitt.edu/~super1/lecture/lec0771/index.htm

Epidemiology of Diabetes Complications II,
http://www.pitt.edu/~super1/lecture/lec0781/index.htm

Epidemiology of Transfusion Transmitted Disease,
http://www.pitt.edu/~super1/lecture/lec0741/index.htm

Epidemiology of hypothyrodism, http://www.pitt.edu/~super1/lecture/lec0791/index.htm

Epidemiology of Disasters I http://www.pitt.edu/~super1/lecture/lec0751/index.htm

Epidemiology of Disasters II http://www.pitt.edu/~super1/lecture/lec0761/index.htm

A new lecture http://www.pitt.edu/~super1/main/new.htm

Global health http://www.pitt.edu/~super1/main/int.htm#glo

Epidemiology in general http://www.pitt.edu/~super1/main/epi.htm#epi1

Case crossover design http://www.pitt.edu/~super1/lecture/lec0821/index.htm

Chinese versions (Big 5) of the following lectures are available:

Clinical Trial Concepts http://www.pitt.edu/~super1/lecture/lec0222/C/index.htm and

Hodgkin Disease http://www.pitt.edu/~super1/lecture/lec0102/C/index.htm

London School of Hygiene & Tropical Medicine:
http://www.lshtm.ac.uk/prospectus/study/distance/epp.htm

Denmark, Short Course on Epidemiological Analysis: http://www.raph.dk

European Schools for Advanced Studies http://www.unipv.it/webpro/epidgen2.html

Cancer epidemiology: http://www.acsu.buffalo.edu/~kmoysich/journal_main.html, http://dir.yahoo.com/Health/Diseases_and_Conditions/Cancer/

German Cancer Research Center http://www.eacr.org/

African Census Analysis Project http://lexis.pop.upenn.edu/acap/acapinfo.html

IEA-Document "Good Epidemiological Practice": http://www.dundee.ac.uk/iea/euro_Contents.htm

Databases for epidemiology courses and research: ttp://www.sph.unc.edu/courses/epid168/

American Journal of Epidemiology
http://www.jhsph.edu/Publications/JEPI/.
http://www.jhsph.edu/Departments/Epi/journals.html,
http://www.karger.com/journals/ned/ned_jh.htm,
http://www.sanita.interbusiness.it/sanita/malinf/english/bollepid/index.htm.
http://chanane.ucsf.edu/epidem/epidem.html#MTG

Annals of Epidemiology: http://www.elsevier.com/locate/annepidem

Epidemiology for journalists:
http://www.facsnet.org/report_tools/guides_primers/epidemiology/main.html

Interpreting environmental risk:
http://www.facsnet.org/report_tools/guides_primers/risk/main.html.
http://www.fjc.gov/EVIDENCE/science/sc_ev_sec.html

Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania http://cceb.med.upenn.edu/home.html

Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report http://www2.cdc.gov/mmwr/

Council of State and Territorial Epidemiologists http://www.cste.org/index.html

Department of Energy Epidemiologic Data Resource http://cedr.lbl.gov/

Epidemiology Data Center, University of Pittsburg http://www.edc.gsph.pitt.edu/

United Nations Population Information Network http://www.undp.org/popin/

US Census Bureau http://www.census.gov/

American Statistical Association, Epidemiology Section http://www.epm.ornl.gov/asasie/

Canadian Society for Epidemiology and Biostatistics: http://www.interlog.com/~cseb/

Center for Biostatistics and Epidemiology, Pennsylvania State University: http://www.stat.psu.edu/department/grad_handbook/centers/cbe.html

LCDC (Health Canada) Disease Surveillance On-Line
http://www.hc-sc.gc.ca/hpb/lcdc/webmap/index.html

Human Rights / Ethics

Project Diana, Online Human Rights Archive, Yale Law School, http://diana.law.yale.edu/

University of Minnesota Human Rights Library, http://www.umn.edu/humanrts/

Harvard University, 2nd International Conference on Health & Human Rights: http://www.hsph.harvard.edu/News/hhr_conf/index.html

World Congress on Medical Law, www.stakes.fi/medlaw

AAAS Directory of Human Rights: http://shr.aaas.org/dhr.htm

AAAScience, Science and Human Rights Program http://shr.aaas.org/program/index.htm

Health and Human Rights Journal http://www.hri.ca/partners/fxbcenter/journal/index.htm

Center for Victims of Torture http://www.cvt.org

Centers for Disease Control and Prevention http://www.cdc.gov

Children in Armed Conflict: http://www2.essex.ac.uk/c&acu/

American Civil Liberties Union http://www.aclu.org/

American Society for Bioethics and Humanities http://iphh.cal.msu.edu/shhv/

Ai, Health Professionals Network http://www.amnestyusa.org/group/hpn/

ARENA and PRIM&R http://www.aamc.org/research/primr/arena

Boston Center for Refugee Health and Human Rights http://www.glphr.org/bcrhhr.htm

Boston University, Health Law Department: http://www.bumc.bu.edu/Departments/HomeMain.asp?DepartmentID=95

Center for Economic and Social Rights http://www.cesr.org/

Center for Reproductive Law and Policy http://www.crlp.org/rfn.html

Columbia University, Center of the Study of Human Rights http://www.columbia.edu/cu/humanrights/

Consortium for Health and Human Rights http://www.healthandhumanrights.org/

Food and Drug Administration http://www.fda.gov

Global Lawyers and Physicians: http://www.glphr.org/

Harvard School of Pub Health, Francois-Xavier Bagnoud Center: http://www.hsph.harvard.edu/News/hhr_conf/FXBC.html

Human Rights Watch http://www.hri.ca/

DRG/ ICD

ICD-10-Thesaurus / DRGs: http://www.dimdi.de/static/en/index.html

Public Health

WWW Virtual Library Public Health http://www.ldb.org/vl/index.htm

US National Library of Medicine

US Department of Health and Human Services: www.healthfinder.gov/

University of Cincinnati, Ohio State University and Case Western Reserve University: www.netwellness.org

Ivanhoe (news-gathering organization): Medical Breakthroughs

Health World Online

List of institutions researching in Public Health (US)
http://www.nlm.nih.gov/nichsr/hsrsites.html#public

WHO (1999) "Making a Difference": http://www.who.int/whr/1999/en/report.htm

EU Coordination Centre of Scientific Organisations (KoWi),
http://www.kowi.de/en/2/desktopdefault.aspx/tabid-36/

National Institute of Alcohol Abuse and Alcoholism: www.niaaa.nih.gov

CDC Wonder Site (reports, guidelines, and numeric public health data)
http://wonder.cdc.gov/

Robert Koch-Institut, with 4000 sites: http://www.rki.de (English version)

Deutsches Hygiene Museum: www.dhmd.de (English version)

American Public Health Association www.apha.org

German Federal Centre for Health Education: www.bzga.de (English version)

Boston University School of Public Health

Harvard School of Public Health

John Hopkins University/School of Public Health

University of Texas School of Public Health (UTSPH) Home Page

University of Pittsburgh, Graduate School of Public Health

Child Health

National Institute of Child Health & Human Development (NICHD)
http://www1.od.nih.gov/ohrm/guide/ethics.html

Guidelines

Guidelines for scientific poster presentations
http://lorien.ncl.ac.uk/ming/Dept/Tips/present/posters.htm

National Guideline Clearinghouse (NGC) http://www.guideline.gov/

CASRO (Council of American Survey Research Organizations):
http://www.casro.org/pubs.htm

Demography and population studies

WWW Virtual Library: Demography and Population Studies
http://coombs.anu.edu.au/ResFacilities/DemographyPage.html

Social Science Information Gateway (International) http://www.sosig.ac.uk/roads/subject-listing/World/demog.html

CIESIN-US Demography http://www.ciesin.org/datasets/us-demog/us-demog-home.html

Electronic Journals

WW Virtual Library: Electronic Journals http://www.edoc.com

Stanford University The Highwire Press http://highwire.stanford.edu/

Statistics

WWW Virtual Library: Biostatistics http://www.biostat.washington.edu/Xvlib/

Links to statistics and software (incl epidemiology and biometrics):
http://members.aol.com/johnp71/javastat.html#Specialized.

Teaching Statistics in the Health Sciences: http://www.bio.ri.ccf.org/ASA_TSHS/.

Disease statistics sites (most US / international):
http://www.who.int/whr/1999/en/disease.htm, http://www.ons.gov.uk/ons_f.htm,
http://www.who.int/whosis/#topics,
http://www-dccps.ims.nci.nih.gov/ARB/Prevalence/index.html,
http://www.cdc.gov/nchs/about/major/dvs/mortdata.htm,
http://www.cdc.gov/nchs/fastats/ce94t58.htm, http://www.gao.gov/

Interactive graphs and tables on the mortality/morbidity of specific populations or subpopulations:
http://www.ehdp.com/vitalnet/index.htm, http://www.ehdp.com/vitalnet/datasets.htm

US Federal Statistics http://www.fedstats.gov/

Statistics Canada http://www.statcan.ca/

WHO, Statistical Information System http://www.who.ch/whosis/whosis.htm

US National Center of Health Statistics www.cdc.gov/nchswww

Institute for Medical Statistics and Documentation: http://info.imsd.uni-mainz.de (English version)

Data banks

US National Health Interview Survey www.cdc.gov/nchs

US National Survey of Family Growth www.cdc.gov/nchs

US National Health and Nutrition Examination Survey www.cdc.gov/nchs

US National Hospital Discharge Survey www.ntis.gov

US National Longitudinal Survey of Youth www.bls.gov

US Census of Income and Program Participation www.sipp.census.gov/sipp/sipphome.htm

US Natality Data Set www.cdc.gov/nchs

US Linked Natality/ Infant Death Data Set www.cdc.gov/nchs

Johns Hopkins Netlinks Database for Population and Health
http://www.jhuccp.org/netlinks/

US Census Bureau, International Data Base http://www.census.gov/ftp/pub

Social inequality

Human Resources Development Canada:
http://www.hrdc-drhc.gc.ca/stratpol/arb/publications/research/arb-97-9e.shtm

Stanford, J. (1999): Economic freedom (for the rest of us).
http://www.policyalternatives.ca/

Townsend, M. (1998). Health and wealth. http://www.policyalternatives.ca/

Annex 2. Example for hospital bookkeeping framework; (Germany, excerpt from decree on hospital bookkeeping)

The following is a *non-authorized and abridged, project internal translation (undertaken by ILO-SEC/SOC in February 2007)* of the German „Verordnung über die Rechnungs-und Buchführungspflichten von Krankenhäusern“ [= here translated as „Government Decree on Hospital Accounting and Bookkeeping Duties“] latest amendment 14. 08. 2006.

The decree broadly reflects minimum modern accounting requirements; the text will be improved later, in the further process of writing-up the course books in detail, and converted into didactically helpful modules such that students are able to grasp the design principles of the decree and their usefulness for hospital accounting in general, i.e. also in South-East Asia.

This annex will be used, after didactical transformation, as input especially to the coursebook for block III (purchasers). It has been annexed to this report for memorandum reasons.

Government Decree on Hospital Accounting and Bookkeeping

§ 1. Covered Hospitals

(1) Coverage of Hospitals does not depend on their legal form. Also Hospitals may still have to process their accounts according to the requirements set by private (trade) law and / or tax law.

(2) This decree does not apply to

1. ...,
2. Hospitals that are not being subsidized according to [special law] ..., or
3. Army Hospitals and the Hospitals of the Social (Work) Accident Insurance.

(3) ....

(4) ....

§ 2. Business Year

Business year = Calendar year.

§ 3. Bookkeeping, Inventory

The Hospital uses double-entry booking .... Accounts follow the Accounting Frame according to Annex 4, ...

§ 4. Annual Accounts

(1) Annual Accounts consist of the Balance, the Current Accounts according to the Annexes of this Decree. ....

(2) The Annual Accounts must be completed within 4 months after the end of the business year.

(3) ....

§ 5. Single Item Stipulations for the Annual Accounts (Balance)

This article concerns issues like how to treat depreciations, how to determine profits according to German Law, etc. Reference is made to other laws.

§ 6. Maintenance of Evidence

According to Private (trade) Law.

§ 7. (deleted)

§ 8. Costing and Accounting System

The hospital has to maintain Cost and Results (services) Accounts which allow for (internal) business administration as well as evaluation of economic efficiency and performance; .... This includes the following minimum requirements:

1. According to its duties and structure the hospital has to determine and establish the required cost centers. As far as relevant to the hospital at least those cost centres must be established as stipulated in *Annex 5 to this decree*. In case the structure, and, accordingly, the cost centers of the hospital differ from the structure in Annex 5 to this decree a formal method must be established that effectuates transformation of the hospital's accounting frame to the one in Annex 5 to this decree.

2. Costs have to be derived in a verifiable way from the bookkeeping system.

3. Costs and results (services) have to be registered with cost centers according to their origins, respectively; further, they have to be allocated to other cost centers as far as required to fulfil the tasks as stipulated in #1.

§ 9. Exemptions

A hospital with up to 100 beds, or with only one bed-keeping department, can be exempted from the duties under § 8 as far as the related costs are to be considered prohibitively high with respect to the expected benefit, and if the purposes mentioned in #1 can be achieved otherwise. The hospital has to apply for this kind of exemption; the decision on the application is being taken by the supervisory body; ....

§ 10. Infringements

Stipulates that responsible hospital management not acting according to the above stipulations infringes rules.

§ 11. Transitional Stipulations

Stipulates temporary exemptions for certain types of hospitals.

§ 12. (deleted)

§ 13. (date of implementation)

Decree, annex 1: Structure of Balance Sheet

Actives

A. *Non-paid amounts of subscribed capital / equity (AG 00)*)* .....
of which: payments formally asked for .....

B. *Fixed assets:*

I. Non-tangible assets and down-payments on those (ASuGs 090 and 091) .....

II. Tangible assets:

1. Real estate and equivalent rights with business buildings, including business buildings on alien estate (AG 01; ASuGs 050, 053) .....

2. Real estate and equivalent rights with dwellings including dwellings on alien estate (AG 03, ASuG 052; ASuG 053 not under 1.) .....

3. Real estate and equivalent rights without buildings (AG 04) .....

4. Technical installations (AG 06) .....

5. Installations and equipments (AG 07) .....

6. Down payments and technical installations under construction (AG 08) .....

III. Financial assets:

1. Share in other enterprises of trust (Konzern) (ASuG 092)++) .....

2. Loans to other enterprises of trust (ASuG 093)++) .....

3. Participating interests (ASuG 094) .....

4. Loans to associated enterprises with participating interests (AG 09)++) .....

5. Securities and other stocks (ASuG 096) .....

6. Other financial assets (ASuG 097) .....
of which: in relation to associate or owner of hospital .....

C. *Operating assets:*

I. Stocks / reserves:

1. Raw material, supply, etc (ASuGs 100-105) .....

2. Unfinished products, unfinished services (ASuG 106) .....

3. Ready made products and goods (ASuG 107) .....

4. Down payments (AG 11) .....

II. Receivables and other assets:

1. Receivables out of deliveries and services (AG 12) .....
of which: due in more than one year .....

2. Receivables from associates / owner of hospital (ASuG 160) .....
of which: due in more than one year .....

3. Receivables from ... [government] (AG 15) .....
of which: ... (ASuG 151) .....
of which: due in more than one year .....

4. Receivables from other enterprises in trust (Konzern) (ASuG 161)++) .....
of which: due in more than one year .....

5. Receivables from associated enterprises (ASuG 162)++) .....
of which: due in more than one year .....

6. Other assets (ASuG 163) .....
of which: due in more than one year .....

III. Securities and stocks of the operating assets (AG 14) .....
of which: shares in associated enterprises (ASuG 140)++) .....

IV. Cheques, cash, central bank-post office-and-bank deposits (AG 13) .....

D. Adjustment items [...]:

1. Adjustment item ... (ASuG 180) .....

2. Adjustment item ... (ASuG 181) .....

E. Transitory items:

1. Disagio (ASuG 170) .....

2. Other transitory items (ASuG 171) .....

F. Deficit not covered by equity (Eigenkapital) .....

Passives

A. Equity (Eigenkapital):

1. Subscribed capital / equity (ASuG 200) .....

2. Equity allocations to reserves (ASuG 201) .....

3. Profit allocations to reserves (ASuG 202) .....

4. Profit / loss carried forward (ASuG 203) .....

5. Annual balance (ASuG 204) .....

B. Special subsidy for financing tangible assets:

1. ... (AG 22) .....

2. Public subsidies (AG 23) .....

3. Other subsidies (AG 21) .....

C. Allocations to reserves:

1. Allocations to cover pension liabilities and similar (AG 27) .....

2. Allocations to cover tax liabilities (AG 280) .....

3. Other allocations (ASuG 281) .....

D. Liabilities:

1. Liabilities with respect to banks (AG 34) .....
   of which: subsidized .....
   of which: due within one year .....

2. Received down-payments (AG 36) .....
   of which: due within one year .....

3. Liabilities out of received services (AG 32) .....
   of which: due within one year .....

4. Liabilities out of finance bills (AG 33) .....
   of which: due within one year .....

5. Liabilities with respect to parties / owner of hospital (ASuG 370) .....
   of which: due within one year .....

6. Liabilities out of "Promotion of hospitals law" (AG 35) .....
   of which: ... (ASuG 351) .....
   of which: due within one year .....

7. Liabilities of other received subsidies for tangible assets (ASuG 371) .....
   of which: due within one year .....

8. Liabilities with respect to enterprises in trust (ASuG 372)++) .....
   of which: due within one year .....

9. Liabilities with respect to associated enterprises (ASuG 373)++) .....
   of which: due within one year .....

10. Other liabilities (ASuG 374) .....
    of which: due within one year .....

E. Adjustment items (AG 24) .....

F. Transitory items (AG 38) .....

Decree, annex 2: Structure of income statement

1. Revenue from hospital services (AG 40) .....
2. Revenue from add-on services (AG 41) .....
3. Revenue from ambulatory hospital services (AG 42) .....
4. Doctors' fees to hospital (for hospital use) (AG 43) .....
5. Change in stock of ready-made or unfinished goods / services

   (ASuG 550 and 551) .....
6. Other activated hospital production (ASuG 552) .....
7. Public subsidies, unless booked under no. 11 (ASuG 472) .....
8. Other revenue (AG 44, 45; ASuG 473, 520; AG 54, 57, 58; ASuG 591, 592) .....
   of which: Adjustments with respect to earlier years (AG 58) .....
9. Personnel expenses:
   a) Wages and salaries (AG 60, 64) .....
   b) Social contributions and old age expenses and support (AG 61-63) .....
      of which: for old age (AG 62) .....
10. Material expenses
    a) Expenses for raw-, support-, and auxiliary materials (ASuG 650; AG 66 without ASuG 6601, 6609, 6616 and 6618; AG 67; ASuG 680; AG 71) .....
    b) Expenses for received services (ASuG 651 As 6601, 6609, 6616 and 6618; ASuG 681) .....
11. Returns on subsidies received for financing investments (AG 46; ASuG 470, 471) ……
    of which: subsidies according to hospital law (AG 46) .....
12. Returns on loans received (AG 48) .....
13. Returns on other financial operations (ASuG 490-491) .....
14. Returns on further financial operations (ASuG 492) .....
15. Costs of loans received (ASuG 752, 754, 755) .....
16. Costs of other financial operations (ASuG 753) .....
17. Costs for using certain types of fixed assets (AG 77) .....
18. Costs for other measures (ASuG 721) .....

19. Costs for further financial operations (ASuG 750, 751) .....

20. Depreciations

    a) of non-tangible assets (ASuG 760, 761) .....

    b) surpassing standard depreciations (AsuG 765) .....

21. Other business costs (AG 69, 70; ASuG 720, 731, 732, 763, 764, 781, 782, 790, 791, 793, 794) .....
    of which: out of adjustment items with respect to earlier business years (ASuG 790) .....

22. Returns on equity (ASuG 500, 521) .....
    of which: out of associate enterprises (A 5000)++) .....

23. Returns on other equity, stocks and loans (ASuG 501, 521) .....
    of which: out of associate enterprises (A 5010, 5210)++) .....

24. Other interest and similar returns (AG. 51) .....
    of which: out of associate enterprises (ASuG. 510)++) .....

25. Depreciations on financial investments (ASuG 762) .....

26. Interest and similar costs (AG. 74) .....
    of which: cash loans (ASuG 740) .....
    of which: out of associate enterprises (ASuG 741)++) .....

27. Result of standard business activities .....

28. Extraordinary returns (ASuG. 590) .....

29. Extraordinary costs (ASuG. 792) .....

30. Extraordinary business results .....

31. Taxes (ASuG 730) .....
    of which: on income and revenue .....

32. Annual balance .....

Decree, annex 3: Proof of investments (not included)

Decree, annex 4: Accounting frame (Account classes 0 -8)

Account class 0: Non-paid equity and tangible assets

00 Non-paid equity on fixed assets (Eigenkapital)

01 Real estate and equivalent rights with business buildings
010 Real estate with buildings
011 Business buildings
012 External (outer) installations

02 free

03 Real estate and equivalent rights with dwellings

030 Real estate with buildings
031 Dwellings
032 External (outer) installations

04 Real estate and equivalent rights without buildings

05 Buildings on alien/external real estate

050 Business buildings
051 free
052 Dwellings
053 External (outer) installations

06 Technical installations

060 in business buildings
061 free
062 in dwellings
063 in external (outer) installations

07 Furnishings and equipments

070 in business buildings
071 free
072 in dwellings
076 Goods for use
0761 Re-purchased goods of low value (more than 51 up to 410 Euro, pre-tax)
0762 Re-purchased goods of more than 410 Euro, pre-tax
077 Values fixed to business buildings
078 free
079 Values fixed in dwellings

08 Installations under construction and down-payments on installations

080 Business buildings
081 free
082 Dwellings

09 Intangible wealth, equity and other financial investments

090 Intangible wealth
091 Down payments on intangible wealth
092 Shares in associate enterprises (trust)
093 Loans to associate enterprises (trust)
094 Equity
095 Loans to associate enterprises
096 Other stocks and equity
097 Other financial investments

Account class 1: Operating assets, transitory accounts

10 Stocks (non-financial)
100 Stocks of nutrition
101 Stocks of medical supplies
102 Stocks of operating material

103 Stocks of business supply
104 Stocks of administration supplies
105 Other material etc.
106 Unfinished products and services
107 Ready made products, goods

11 Down payments (unless to be booked in account class 08)

12 Claims based on deliveries and services

13 Cheques, cash, central bank and post-giro accounts, bank deposits

14 Securities under operating assets

140 Equity in associate enterprises

15 Claims according to (hospital) finance laws

150 Claims according to hospital finance law
151 Claims according to other (hospital) finance legislation

16 Other assets

160 Claims with respect to associates / owner of hospital
161 Claims with respect to other enterprises in trust
162 Claims with respect to associate enterprises
163 Further other assets

17 Transitory accounts

170 Commission/fee
171 Other

18 Adjustments according to hospital finance law

180 Adjustments required according to preferential loans received
181 Adjustment required according to subsidies received for strengthening hospital capital basis

19 free

Account class 2: Equity (Eigenkapital), special items, reserves

20 Equity (Eigenkapital)
200 Fixed equity
201 Capital reserves
202 Profit reserves
203 Profit / loss advancement
204 Annual result (surplus / deficit)

21 Special items (liability) received from third parties

22 Special items (liability) received according to hospital finance law

23 Special items (liability) received from the state

24 Adjustments according to preferential loans received

27 Coverage of pension liabilities

28 Building reserves for other purposes

280 Building reserves for tax payments
281 Building reserves for other reasons

29 free

Account class 3: Liabilities, transitory accounts

30 free

31 free

32 Liabilities out of deliveries and services

33 Liabilities out of certain financial operations

34 Liabilities with respect to banks

35 Liabilities with respect to hospital finance legislation

350 Liabilities with respect to hospital finance law
351 Liabilities with respect to other hospital finance law

36 Received down payments

37 Other Liabilities

370 Liabilities with respect to associates / owner of hospital
371 Liabilities with respect to other subsidies received
372 Liabilities with respect to other enterprises of trust
373 Liabilities with respect to associate enterprises
374 Further other liabilities

38 Adjustments

39 free

Account class 4: Cash returns out of operations

40 Cash return on hospital services
400 Cash return out of daily care service fees
4001 Cash out of daily care service fees, type 1
4003 Cash out of daily care service fees, type 2
4004 Cash out of daily care service fees, type 3
4005 Cash out of daily care service fees, type 4
4006 Cash out of daily care service fees, type 5
401 Cash return out of DRGs and special fees
4010 Cash out of DRGs
4011 Cash out of special fees
402 Cash return out of non-inpatient treatments
4020 Cash out of out-patient treatment (ante-treatment)
4021 Cash out of out-patient treatment (post-treatment)
403 Cash income from education / training fee
404 Cash income according to social care law

405 Special additional cash income according to hospital finance law

41 Cash income according to add-on services

410 Cash out of patients' special choice of physicians' services
411 Cash out of special hotel service
413 Cash out of special services, not related to physicians' services

42 Cash income out of ambulatory hospital services

420 Cash income of hospital ambulatories
421 Cash income of Chief-doctors ambulatories, includes material costs
422 Cash income out of ambulatory operations (surgery)

43 Doctor user fees and other duties of doctors

430 User fees for add-on physicians' services
431 User fees for ambulatory add-on physicians' services
433 User fees for doctors with "own hospital beds"
434 User fees for doctors' consultancy / advisory services etc.
435 User fees for the pro-rata depreciations of medical high-tech machinery

44 Cost coverage

440 Cost coverage of personnel, general
441 Cost coverage of personnel, hotel costs
442 Cost coverage of personnel, nutrition
443 Cost coverage of personnel, other services

45 Returns on special services, emergency

450 Returns on auxiliary parts of hospital business
451 Returns on activities of other ("side-") parts of business
452 Returns on hospital physicians' medical emergency services

46 Returns on subsidies according to hospital finance law

460 Returns on subsidies
461 Other subsidies

47 Public subsidies

470 State subsidies to stipulate investments (unless under 46)
471 Other public subsidies to stipulate investments
472 State subsidies covering current expenses
473 Other public subsidies covering current expenses

48 Other certain revenue related to the provision of preferential loans

49 Returns out of liquidization of certain assets

490 Out of liquidization of subsidies according to hospital finance law
491 Out of liquidization of subsidies of other state institutions
492 Out of liquidization of adjustment items of preferential loans

Account class 5: Other cash returns

50 Returns on equity and other financial investment

500 Return on equity
5000 Return on shares in other enterprises of trust
501 Returns on other financial investments
5010 Returns on other financial investments of enterprises in trust

51 Other interest and similar returns

510 Other interest and similar returns of enterprises in trust

52 Returns on deductions from / addings to tangible and financial assets

520 Tangible assets
521 Financial assets
5210 Financial investments in associate enterprises

53 free

54 Returns out of liquidization of reserves

55 Change of stocks and other activating services

550 Change in stocks of finished and non finished products
551 Change in stocks of unfinished services
552 Other such outputs

56 free

57 Other standard returns

58 Returns out of adjustments with respect to earlier business years

59 Further returns

590 Extraordinary returns
591 Returns not related to business year
592 Revenue from charity etc

Account class 6: Costs

60 Wages and salaries
6000 Doctors' medical service
6001 Care service
6002 Medico-technical service
6003 Functional service
6004 Clinical personnel, general
6005 Current operations and supply
6006 Technical service
6007 Administration
6008 Special services
6010 Personnel of training sites
6011 Other personnel
6012 Personnel costs that can not be allocated to one of the above

61 Legally mandated social contributions (allocation like 6000-6012)

62 Costs for old age provisions (allocation like 6000-6012)

63 Costs for medical cash support etc of hospital personnel (allocation like 6000-6012)

64 Other personnel costs (allocation like 6000-6012)

65 Nutrition, etc.

650 Nutrition
651 Etc.

66 Medical supplies

6600 Pharmaceuticals (except implants and material for dialysis)
6601 Costs of the supplying pharmacy
6602 Blood etc
6603 Bandage etc
6604 Doctors' and care personnel's auxiliary materials, instruments
6606 Narcotics and other materials needed for surgery
6607 Materials etc needed for x-ray and nuclear medicine
6608 Laboratory materials
6609 Investigations in alien/external institutes
6610 Material required for EKG, EEG, Echography/ultrasound
6611 Material needed for physical therapy
6612 Pharmaceutical material, disinfectant material
6613 Inplants
6614 Transplants
6615 Material needed for dialysis
6616 Costs of transport of patients
6617 Other medical material
6618 Honoraria for non-hospital doctors

67 Water, Energy, Fuel

68 Other expenses required for running the hospital

680 Material
681 Received services

69 Material required for administration

Account class 7: Costs

70 Costs central services
700 Central administrative services
701 Central common services

71 Specific re-purchased goods for use

72 Maintenance

720 Maintenance coverable by fee schedule
7200 Maintenance, specific
7201 Maintenance, medical technique
7202 Other maintenance
721 Further costs

73 Tax, duties, insurance

730 Tax

731 Duties
732 Insurance

74 Interest payments and similar costs

740 Interest payments and similar costs on short-term (cash) loans for hospital
741 Interest payments and similar costs related to other enterprises of trust
742 Interest payments and similar costs related to other loans etc

75 Liquidization of certain items

750 Liquidization of ...
751 Liquidization of ...
752 Payment to ... [reserves]
753 Payment to ... [reserves]
754 Payment to ... [reserves] (unless under ASuG 752)
755 Payment to ... [reserves]

76 Depreciations

760 Depreciation of intangible assets
761 Depreciation of tangible assets
7610 Depreciation of re-purchased goods for use
762 Depreciation of financial assets
763 Depreciation of claims
764 Depreciation of other assets
765 Extraordinary depreciations

77 Costs of the use of tangible assets

78 Other standard costs

781 Training centres
782 Other
7821 Payments according to law on training fee schedule

79 Further costs

790 Related to earlier business years
791 Related to loss of assets
792 Extraordinary costs
793 Costs not related to business year
794 Paid charity etc

Account class 8:

80 free

81 free

82 free

83 free

84 free

85 Opening and closing accounts

86 Returns not included in accounts

87 Costs not included in accounts

88 Calculatory costs

89 free

Decree, annex 4: Allocation key

Account group (2 digits), account sub-group (3 digits), account (4 digits)

03 and 052

Dwellings (apartment buildings, etc.) which are not necessary for hospital operations and, thus, are not subsidized by hospital finance law.

150

Specific application of German legislation.

60

Wages and salaries stipulate a wide notion of personal income / labour costs. Costs of personnel external to the hospital to be logged according to Annex 2, above.

6000

Payment to ALL doctors. Payments to doctors external to the hospital to be logged under account 6618.

6001

Payment to ALL care personnel providing “bedside”service, including in intensive care, dialysis and similar units. Payments to care personnel in the medico-technical services, functional services, etc are to be logged to accounts 6002, 6003, 6005 and 6007, accordingly.

6002

Payments to

Pharmaceutical personnel

Doctoral assistants

Audiometrics

Bio-engineers

Chemists

Chemo-technicians

Cytology assistants

Dieticians, nutritionists

EEG-assistants

Health engineers

Cardio technicians

Health gymnastics

Hospital engineers

Laboratory assistants

Logopaedists

Masseurs

Medical supervisory staff in baths

Medical physicists

Medico-technical assistants

Medico-technical laboratory assistants

Medico-technical radiology assistants

Orthopaedists

Personnel for medical documentation

Physicists

Physico-technical assistants

Psychologists

Non-doctoral psychotherapists

Secretaries

Other personnel

Social workers

Persons taking care of animals, etc

Dental assistants and similar personnel

6003

Payments to

Care personnel in surgery

Care personnel in anaesthetics

Midwives

Care personnel in ambulatory services

Care personnel in polyclinics

Care personnel in blood transfusion units

Care personnel in functional diagnostics

Care personnel in endoscopic services

Childnurses/nannies, i.e. working with sick children

Transport services

Occupational therapists

Personnel of central sterilization

6004

Cleaning personnel

6005

Payment to personnel in the following areas:

Disinfection

Craftsmen (unless account 6006)

Janitor

Gardeners

Messengers

Kitchen etc

Depot

Cleaning service, except hospital personnel

Transportation (not sickness transportation, see account 6003)

Laundry, sewing

Butchers, greenhouses, etc.

Central bed-maintenance

Personnel occupied with administration to be booked under account 6007.

6006

Payment to personnel in the following areas:

Business engineers

Centres supplying heat, hot and fresh water, fresh air, medical gas, electricity

Technical business assistants

Technical service centres

Technical centres

Maintenance, e.g. painters, wallpaperers, other craftsmen

6007

Remuneration of personnel of administration, filing, technical administration etc unless to be accounted for under account 6006, e.g.:

Reception

Guards

Postal services

Libraries

Shopping

Inventory

Cash and bookkeeping

Human resources

Concierge

Planning

Registration / filing

Statistical unit

Technical administration, unless under account 6006

Switchboard personnel, call centre

Chief of administration

Secretaries of administration

6008

Payments to

Church-based personnel

Sisters/nuns

Sisters/nuns in sisters' administration

Priests

Non-religious caretakers

Personnel serving personnel and their children

6010

Payment to trainers with labour contract.

Other payments (honoraria, etc.) for trainers of hospital personnel to be logged under ASuG 781.

6011

Payments for interns and the like.

61 (allocation like 6000 - 6012)

Employers' contributions to health-, pension-, and unemployment insurance as well as to accident insurance.

62 (allocation like 6000 - 6012)

Only payments for old-age provisions; direct old-age payments to earlier hospital staff.

63 (allocation like 6000 -6012)

64 (allocation like 6000 -6012)

Other personnel costs, like reimbursements of travel costs, voluntary Christmas presents and the like. Individual subsidization of daily meals.

6618

Honoraria for non-staff doctors of the hospital.

Decree, annex 5: Cost centres

90 Common cost centres
900 Buildings including real estate and external installations
901 Director and administration of hospital
902 Workshops
903 Auxiliary units
904 Personnel facilities (required for the operations of the hospital)
905 Training facilities
906 Social services, care taking of patients
907 free
908 free
909 free

91 Supplies

910 Supplies of nutrition
911 Laundry
912 Central cleaning
913 Supplies of energy, water, fuel etc
914 Hospital internal transportation
915 free
916 free
917 Pharmacy (without production)
918 Central sterilization
919 free

92 Medical institutions

920 x-ray diagnostics and therapy
921 Nuclear diagnostics and therapy
922 Laboratories
923 Functional diagnostics
924 Other diagnostic units
925 Anaesthesia, operation units and delivery room
926 Physical therapy
927 Other therapeutic units
928 Pathology
929 Ambulances

93 -95 Normal care

930 General cost centre
931 General internal medicine
932 Geriatrics
933 Cardiology
934 General nephrology
935 Haemodialysis / artificial kidney (alternative 962)
936 Gastroenterology
937 Paediatrics
938 Cardiology of children
939 Infection
940 Treatment of the respiratory system
941 General surgery
942 Accident surgery
943 Child surgery

944 Endoprothetics
945 Surgery of vessels
946 Surgery of hands
947 Plastic surgery
948 Thorax surgery
949 Heart surgery
950 Urology
951 Orthopaedics
952 Neurosurgery
953 Gynaecology
954 Ears, nose, throat, and eyes
955 Neurology
956 Psychiatry
957 Radiology
958 Dermatology and venereology
959 Dental therapy, dental surgery

96 Care of varying intensity

960 General cost centre
961 Intensive monitoring
962 Intensive treatment
963 free
964 Intensive medicine
965 Minimal care
966 After care
967 Day clinics
968 Night clinics
969 Chronic and long-term sick

97 Other units

970 Personnel units (not necessary for the operations of the hospital)
971 Training
972 Research and teaching
973-979 free

98 Out sourcing

980 Ambulances
981 Auxiliary units
982-989 free

99 free

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*) Information in brackets (…) relates to the accounting frame concerned. Not shown in official publications.
++) This information is only shown in the accounts of equity-based hospitals.

AG = Accounts Group
ASuG = Accounts SubGroup