Introduction to Comparative Health Systems

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Learning Objectives

- Define a “health system”
- Identify key goals of health care systems
- Name the vital functions of health care systems
- Recognize different methods of financing health care systems
- Identify 3 immediate performance measures
- Understand the ‘control knob framework’

In this module, we will explore different ways to compare health systems. This module is meant to be an introduction to the major concepts and not a comprehensive review.

For a more extensive review, read the *World Health Report 2000* by the WHO and *Getting Health Reform Right* by Roberts, Hsiao, Berman and Reich.
Case Study

• You are asked to compare the health systems between South Africa and Zimbabwe. How would you note which health system is better? What criteria would you use?
What is a “Health System”? 

World Health Report 2000 defines a health system as:

“All the activities whose primary purpose is to promote, restore or maintain health.”
How Can a Health System Help?

- Better health systems can deliver treatments and prevention programs more effectively.
- If priorities are set to cost-effective care, overall population health may improve.

Health systems that run efficiently get health to where it’s needed most. A good health system successfully delivers treatments and prevents disease. Establishing cost-effective health care can improve population health.
How Can a Health System Hurt?

- Little evidence that doctors or hospitals, total health expenditure or public spending improves health.
- Health systems can cause harm.
  - Medical errors in US hospitals cause over 44,000-98,000 deaths a year (Kohn, Corrigan and Donaldson, 2000)
  - Nosocomial (hospital-acquired) infections are common, and antibiotic-resistance is developing.

Poor health systems can harm health. There is little evidence that increasing health care spending past a basic level improves population health.

There is also evidence that health systems can cause harm, including inadvertent medical errors, nosocomial (man-made) infections, and increasing antibiotic-resistance.
There is a significant global increase in health care spending. Currently, health care spending is about 10% of global GDP. In the US, current health care spending is approaching 16% of GDP! These spending measures will increase with an aging baby boomer population. The health care service sector is also growing rapidly. Currently, there are about 60 million individuals working in health care worldwide.

However, these measures mask an enormous discrepancy between rich and poor countries. The low and middle income countries account for the vast majority of the disease burden, but very little global health spending. The difference both in health care and health research is known as the 10/90 gap. The 10/90 gap refers to the statistical finding of the Global Forum for Health Research that only about ten per cent of worldwide expenditures on health research and development are devoted to problems that primarily affect the poorest 90 per cent of the world’s population.

Low- and middle-income countries comprise 18% of world income, 11% of global health spending, yet 84% of the world’s population and 93% of the world’s disease burden!
Useful definitions

Goodness: “To obtain the best average level.”

Efficiency: “The ratio of the observed level of attainment of a goal to the maximum that could be achieved with the observed resources.”

Fairness: “There are small differences between individuals and groups.”

There are a number of basic definitions to understand.

1. Goodness refers to obtaining the best level of health for the average individual.
2. Efficiency refers to a theoretical maximum with a given amount of resources, and how close one’s country achieves this theoretical maximum.
3. Fairness refers to differences between minimizing the differences between individuals to the group mean.
Goals of a Health Care System

1. Improve health
2. Increase responsiveness to legitimate demands of the population
3. Ensure financial burdens are distributed fairly

For the first 2 measures, it should improve both the level and reduce inequalities.

The Goals of a Health System outlined 3 major health goals for every country in World Health Report 2000. They are as follows:

1. Improve the level and distribution of health.
2. Increase the level and distribution of responsiveness to health needs.
3. Ensure financial burdens of health are fairly distributed.
Limitations of Measuring Health Care System outcomes

• Confounding factors: educational levels, environmental hazards, housing, nutritional status

• Adversely affected by new disease (e.g. HIV/AIDS) or civil unrest

Measuring health care is subject to a number of confounding factors. For example, education may mean better understanding of health prevention methods, more health education, and better access to health care. The environment may reduce air pollution, decreasing asthma and emphysema.

Health care systems can also be adversely affected by new disease (such as HIV/AIDS) or civil unrest.
Key Vital Functions of Health Care System (World Health Report 2000)

1. Service Provision
2. Resource Generation
3. Financing
4. Stewardship

Each function will be reviewed in more detail

A landmark report on health care systems was the World Health Report 2000. It highlighted 4 key areas of the health care system: service provision, resource generation, financing, and stewardship.
This graph shows the relationship of the different functions to each other (outlined in the light blue), with the objectives (outlined in red) of the health care system.

Source: World Health Report 2000, p. 25, Figure 2.1
Service Provision

Some key questions:

1) Do the choices of health interventions maximize the potential of the health care system?
2) Do the choices of health interventions reduce inequality?
3) What is the market structure, utilization patterns and local, regional and national risk and disease patterns?
4) How are choices between different health priorities made?
5) What are the incentives, and are they aligned to health priorities?

Service provision refers to health care services, such as doctors, nurses, and community health care workers. However, basic questions should be asked prior to this. **First**, do we optimize the cost-effectiveness of our interventions, and utilize resources as optimally as possible? **Second**, do we bring resources to the population as fairly and equitably as possible? **Third**, what are the underlying disease patterns and risk factors, and how should resources be allocated to address them? **Fourth**, what health prioritization method is used? Is it political in nature, cost-effectiveness, burden of disease, equity, etc.? **Finally**, what incentive structures are in place to align service provision while addressing health care system issues?
Service Provision (con’t)

• Services can be concentrated with few hospitals, large numbers of patients, or decentralized, with many small hospitals and clinics and relatively fewer patients
• In many low and middle-income countries service providers work both for the government and privately
• Regulations may be poorly enforced
• System may provide poor incentive structures
• Informal health sector (eg, pharmacists, traditional healers, etc.)

Service provision includes the informal sector (such as pharmacists, traditional healers, and mothers). Service provision may be inadequate if dysfunctional organization of the health care system exists. In many developing countries, physicians work both in the “public” health care system, as well as their own private offices.
Resource Generation

• Mixture of physical capital, human resources and consumables (food, drugs, supplies, fuel, etc.) required to produce health interventions
• Finding the correct mixture maximizes health care efficiency

There are limited financial resources for health. The two major expenditure categories are capital categories and recurrent expenditure categories.

There are a number of budget elements. Capital expenses go into the training of people, and investment in buildings and equipment. Recurrent expenses include labor, maintenance of building and equipment, and other recurrent costs such as consumable goods.

In turn, these budget elements can be used to provide different health system inputs. These major health system inputs include human resources, physical capital and consumable goods. These three health system inputs are combined to produce health good and services.
Resource Generation (con’t)

• As resources increase, supporting services that improve health care should be examined
  – Clinical protocols for managing patients
  – Patient registration
  – Training curricula, norms, resources
  – Licensing of health personnel
  – Accreditation of training institutions

• Prevent “brain drain” from resource-poor countries

As a nation improves its wealth and its health services, this list provides a few considerations that should be put forth. One concern from a resource generation perspective is the burden of the “brain drain”. Increasingly, physicians, nurses and other health professionals go from resource-poor countries to resource-rich countries, depleting the health capacity of resource-poor countries.
Financing

• Direct Purchaser Payment
• Community Insurance
• Social Insurance
• General Revenue
• Private Insurance
Direct Purchase Payment

- User Fees, Fee for Service, Out-of-Pocket Payments
- Does not require an organized health care system
- User Fee: Bamako Initiative (1987)
  - Decentralize health care to the district level, essential drugs
- Supported by the World Bank through 1980s

This is the basic system to pay for health care services and dominates developing countries. An alternative is the concept of the user fee, cost sharing, cost-recovery or co-payment. In health policy, this is the model that the Bamako Initiative established.

In 1987, the government of Mali attempted to decentralize health care to the district level to create an essential drug policy. The financing was supposed to be a shared agreement at the national, regional, and local levels with individuals. The user fees were to help enhance existing government health services, but not to replace government funding. However, what ensued was mostly fee-for-service payment schemes. The World Bank supported the concept of fee-for-service through the 1980s.

The problem with user fees is that it makes very poor individuals reluctant to use health services unless they are very sick. Yet, user fees also adversely effect primary care services. More recently, the World Bank has gone away from the Direct Purchase Payment concepts for health care.
Community Insurance

• Prepayment scheme at the community level
• Village or group of villages negotiate with suppliers of health care for discounted services
• Improves incentives for higher quality service
• Community remains in control
• Concerns of over-use (moral hazard) and selection bias of patients (adverse selection)
Community Insurance (con’t)

One of the important concepts in health care financing is the concept of pooling risk. Pooling risk refers to trying to spread the risk of an individual across a number of individuals so that the chances that one person has to pay the “full” amount of a “bad” health event is minimized.

Community insurance is a prepayment scheme, in which individual members of a community put in a specific amount for “health services.” The community, in turn, negotiates on behalf of a village or group of villages with health care providers for discounted health services.

Community financing raises money at a local level, allowing the community the opportunity to direct funds. In many developing countries, most community health insurance concentrates on primary health care service provision with a provision to allow services with secondary and tertiary hospitals for catastrophic health events, such as heart attacks, pneumonia, and other major diseases.

There are 2 major concerns with community insurance. First, it needs wide adoption from the community or else “adverse selection” will occur. Adverse selection refers to the sick preferentially buying insurance, while the healthy do not. The second is “moral hazard”, which refers to the observation that some people will go seek health care simply because they have insurance in place. One of the countries that use community insurance is rural China.
Social Insurance

- Extension of community health insurance
- Prospectively collecting funds to purchase health care in future
- Otto von Bismarck and introduction of social insurance in Germany in 1883
- Insurance scheme may be based on either employer’s funding or through government regulation and services
- 3 key factors: Compulsory, Social Compact, Funds Raised and Targeted to Health
In 1883, Otto von Bismarck amalgamated many community health insurances into a national social insurance scheme. The two most common ways is either through employment or via the government.

There are 3 key components to a successful social insurance scheme. First, it must be compulsory to avoid adverse selection, where only the sickest or highest risk individuals buy insurance. Second, there is a social compact, where individuals pay into the scheme and the funds are fairly distributed. Finally, all funds that are raised are targeted to financial the social health insurance system.

In some places, social insurance is compulsory for all citizens, while in others, it is only for those who work in formal work arrangements. Social health insurance results in a more responsive system, due to the pool of funds. Secondly, in areas with large numbers of formal workers, these workers can be identified.

The disadvantage of the social insurance system is that it generally excludes those that aren’t in formal work situations. Second, the cost of social insurance is shifted from employer to employee in the form of lower wages. Third, if there is competition, insurers compete for healthy individuals. Finally, collection of funds requires a system to be in place to administer the financial and health care systems.

One of the countries that use social insurance is France.
General Taxation

• Funding from general tax revenues
  – This is different than social insurance which uses targeted funds
  – Assumes good tax collection
  – Provides steady source of revenue
  – Requires financial accountability
  – Can be progressive and improve equity

• Public good services such as immunization are best financed by general revenue

• General taxation competes with other special interests
A common way of financing health care in wealthy countries is through general taxes. This requires a good government system to collect taxes, and may range from income tax, sales and value-added taxes, import and export taxes, and corporate tax.

General taxation provides a steady strong source of revenue, but it is also important politically as it is often a large percentage of a country’s Gross Domestic Product (GDP). It requires strong financial accountability.

General taxation may also be progressive and improve equity, and can pool risks across entire populations. Some public services, such as immunizations and public health surveillance may be funded best by general taxation.

One of the difficulties is that general taxation does compete with other sectors of government, such as education, defense, and public infrastructure. As well, when things are financed through general taxation, certain sectors of society may do better than others in attracting health care services.

One of the countries that use general taxation is Canada.
Private Insurance

- Purchasing insurance on a voluntary basis from individual competitive sellers
- Premium charged on basis of purchaser’s risk
- Can spur technological advancement
- ‘Adverse selection’ is possible, i.e., those who are sick are more likely to buy insurance
- Poor and sick have less access of such insurance
- High administrative and marketing costs
Private insurance refers to the purchasing of health insurance on a voluntary basis from individual sellers. The major distinguishing factor is that private insurance is based on a purchaser’s risk and not on the ability to pay.

Private insurance is especially prevalent in wealthier countries without strong generalized taxation schemes. One of the keys in employment is the tie between employment and private health insurance as a benefit for employees.

However, one of the key problems is adverse selection; sellers try and get the healthiest patients into their programs while sick individuals try to buy the best, most comprehensive insurance possible. In general, the poor and the sick find it difficult to purchase insurance, and there are often high administrative and marketing costs associated with health care insurance.

The United States is mostly a private health insurance market, with health care costs utilizing more than 15% of GDP despite 45 million uninsured individuals.
Stewardship

• Define a vision, goals and objectives of health policy
• Establishes rules and advocates for improved health
• Collects information, analyses data and informs public policy
• Build an evidence base on country efforts to improve the performance of health systems.
• Looks at appropriate technology use
• National Health Accounts (see next page)

The concept of stewardship is to ensure that the other aspects such as service provision, resource generation and financing, and overall responsiveness of the system is being measure appropriately, and rules and definitions of a “successful” health system is clearly being established and maintained. It also looks for methods to improve the health system efficiency and overall population health.
National Health Accounts:

- Monitor health care spending including capital and recurrent expenditures
- Measure trends in a country and allows comparison between countries
- Look at foreign and domestic, public and private inputs, and quantities of nurses, medical equipment, primary, secondary and tertiary level hospitals

National Health Accounts refers to a method that tracks money flows from revenue sources through intermediaries to providers. It helps monitor trends in health care spending of public and private sectors. It is useful to monitor how different health care activities, diseases and population groups spend health and how providers’ revenues are generated.

National Health Accounts can also help direct financing opportunities, and allows for comparisons with historical trends and between similar countries.
Health Care System Goals (a reminder)

1. Improve health
2. Increase responsiveness to legitimate demands of the population
3. Ensure financial burdens are distributed fairly

For the first 2 measures, it should improve both the level of health and reduce inequalities.
Measuring Health ...
Measuring Health Care Systems

• How close is actual health performance to estimated theoretical maximum health performance?
• Two methods to estimate the ‘maximum’ level of health
  1) Look at feasible interventions, identify costs and outcomes and choose those that maximize health
  2) Estimate from a sample of observed inputs and outcomes, and form a regression line. Countries with highest health levels for a given input is the most efficient (method used in *World Health Report 2000*)

There are different ways to measure health care system performance.

In theory, the best method would be to identify the “best health available” given a set of inputs. However, in practice available data are not sufficient to perform these measurements. The alternative that Evans et al. (2001) used in World Health Report 2000 was to look at a sample of population health outcomes, and inputs that were specified, and they constructed a regression line. The outcome with the best health levels after taking into account the inputs was deemed the most efficient health care system (Oman). All other countries were measured against this “most efficient” health care system.

Oman has the top score in the ranking, because for its given amount of inputs such as physicians and nurses, equipment and supplies, it seems to have the best health outcomes, such as life expectancy, given its health care limitations.
### Top and Bottom Ten Leading Countries by Health Performance (1993-1997)

#### Top 10
- Oman (0.992)
- Malta (0.989)
- Italy (0.976)
- France (0.974)
- San Marino (0.971)
- Spain (0.968)
- Andorra (0.964)
- Jamaica (0.956)
- Japan (0.945)
- Saudi Arabia (0.936)

#### Bottom 10
- Zimbabwe (0.080)
- Zambia (0.112)
- Namibia (0.183)
- Botswana (0.183)
- Malawi (0.196)
- Lesotho (0.211)
- Democratic Republic of Congo (0.217)
- Swaziland (0.229)
- Sierra Leone (0.230)
- South Africa (0.232)

Intermediate Performance Measures

3 key immediate performance measures:

1. Efficiency
2. Access
3. Quality
**Efficiency**

- Efficiency refers to the relationship between resource inputs and the resultant outputs. A health provider or system is said to be ‘efficient’ if it attains its objectives at the least possible cost.

Two key elements:
- **Technical efficiency:** Producing a good or service at minimum cost
- **Allocative efficiency:** Producing the ‘right’ collection (or mix) of outputs to achieve overall goals

There are different ways to look at efficiency. In health, the two main ways are “technical efficiency” and “allocative efficiency.”

Technical efficiency refers to maximizing health given a certain set of inputs available. The terminology refers to “how” the production of health is made.

Allocative efficiency refers to producing the right health services to achieve overall goals. The terminology refers to “what” health services are produced, and are they the right health services. It is also used in determining “how” much of each service is produced.
Access

• This refers to the ability of patients to get and receive health care services.

Two types of access:

**Physical availability:** Is the service offered at all?

**Effective availability:** Can individual access the care?

Access is another important aspect to health care. Two major elements are considered. The first is “physical availability” and the second is “effective availability.”

“Physical availability” refers to the notion that health care providers are actually available to a population, such as doctors, nurses, hospital care, etc …

“Effective availability” refers to the concept that health care can be truly delivered to the population. For example, does travel time, poor service, or cost act as barriers for the population to utilize health care, even if it was available?

Many times, health systems improvements look only at “physical availability” without taking into account the “effective availability” component.
Quality

- This refers to “goodness of care”, as seen by either the patient or the health care provider. Three quality issues:

  **Quantity of care:** Amount of health care provided
  **Clinical quality:** The skill of the caregivers and the technical equipment needed to provide the care
  **Service quality:** The quality, convenience and amenities of the health care services provided

There are also different elements of quality that need to be considered. The first element is that quantity of health care is a measure of quality. For example, “patient X received lots of health care”, is seen as a measure of the quality of the health care system.

  The second element is the clinical quality, which refers to the skills of the health practitioners, in diagnosis, treating and preventing disease.

  The final element is the service quality. Was the service provided in a timely fashion, with care and sincerity? Was the service done with the quality and amenities expected in a health care service?
Summary

• Health systems are all the activities that promote, restore or maintain health
• Health systems can both help and hurt individuals
• The goals of a health care is to improve health, improve responsiveness of a system, and to distribute financial burdens fairly
• There are 4 key functions of a health care system: service provision, resource generation, financing, and stewardship
Summary (con’t)

- Financing can have 5 different major methods: direct purchase payment, community insurance, social insurance, general revenue, and private insurance
- National health accounts can help monitor health care spending
- Three key intermediate performance measures are: efficiency, access, quality
General References

Papers


Books

Credits

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