

# INTRO TO HEALTHCARE STUDY GUIDE

## MODULE 1 – OVERVIEW OF HEALTH CARE SYSTEMS AND KEY CHALLENGES THEY FACE

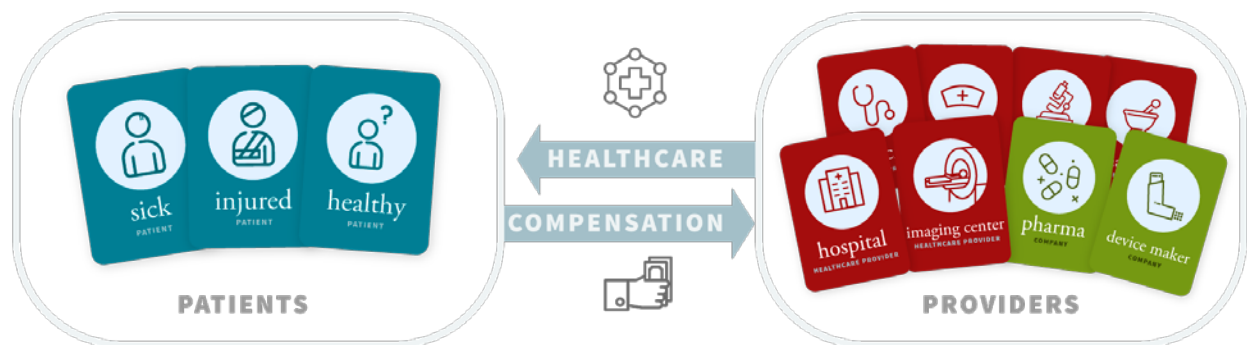
### LEARNING OBJECTIVES

1. Identify key institutions and participants in the health care system and describe their major characteristics and roles
2. Describe a framework relating health care providers, intermediaries (insurers) and patients
3. Describe risk and risk pooling and its relationship to health insurance
4. Describe important challenges facing health care systems and the role they play in promoting discussions of future changes – high and rising costs, access to care, quality challenges
5. State implications of system structures for data analytics

### THE BASIC STRUCTURE OF HEALTH CARE SYSTEMS

The simple interaction at the heart of any healthcare system - is an interaction between two parties.

- **Patients** - People who are sick or injured, people who are healthy but who want to get some preventive health care, people who would like to ask a question or get some information, people who have a concern about someone else they care about.
- **Providers** - Health care providers, the people who can help patients such as doctors, nurses, pharmacists, lab technicians, a pretty wide range of people. Sometimes also include institutions like hospitals or imaging centers, makers of health care goods and services like a pharmaceutical company or a medical device maker.



The goal for this interaction between patients and providers is to have “health care” flow from the providers to the patients; setting up a health care system to get health care from the providers to the patients in an effective and timely way.

The providers need to get compensated in order to provide health care and be sustainable. Thus, the transaction is needed in which health care gets provided, in return for some compensation.

A simple transaction between patients and providers worked in the past, then things happened that started to break this down, and couldn't continue with just this structure anymore. Health care providers grew and became more sophisticated.

Effects of Health Care's Growing Sophistication:

- People want more health care
- Healthcare becomes more expensive

With sophisticated health care, unplanned health care expenses became an issue which caused **problems**:

- Financial discomfort or hardship for patients affecting willingness to use health care
- Providers not getting paid affecting their ability to provide services

## PROBLEM, RISK, AND RISK POOLING

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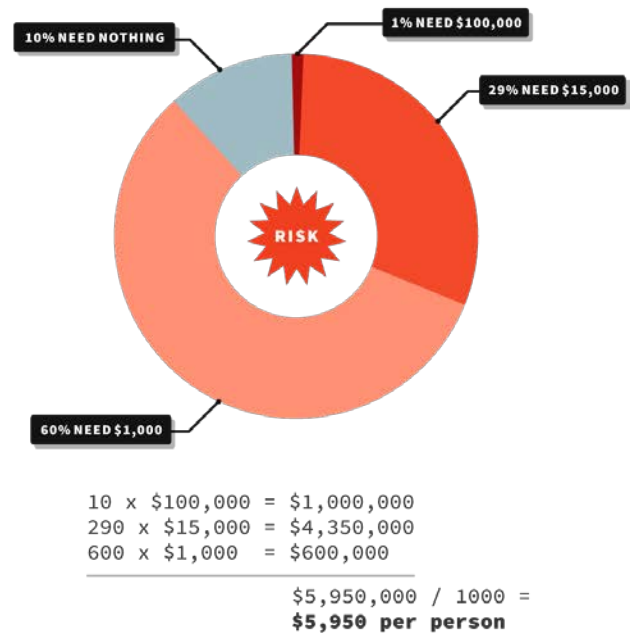
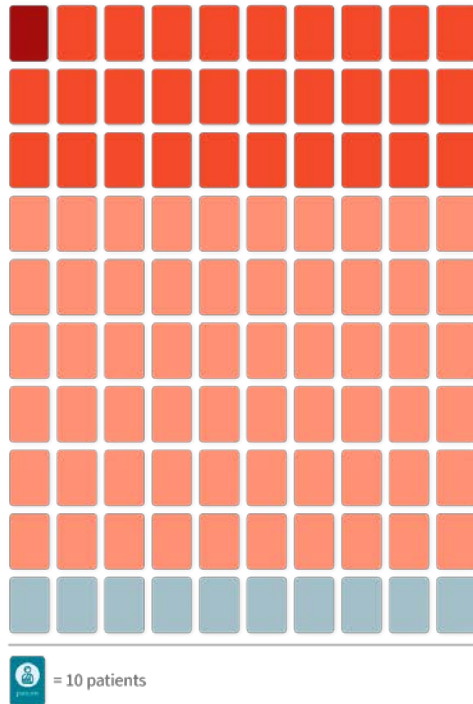
This problem is named “*the problem of risk*”.

Risk: The possibility of facing a financial loss associated with the use of healthcare

With health care being as sophisticated and costly as it is, it's very easy to find situations where someone can benefit from health care with a very big price tag that they would not be able to afford, and this risk starts to break the original transaction, and ability to treat healthcare is just a simple good or service.

A solution to the problem of risk is to *pool the risk*.

Risk pooling: Sharing risks among many members of a group. Shift the risk away from the individual and give the risk to the group, which is collectively better positioned to handle it.

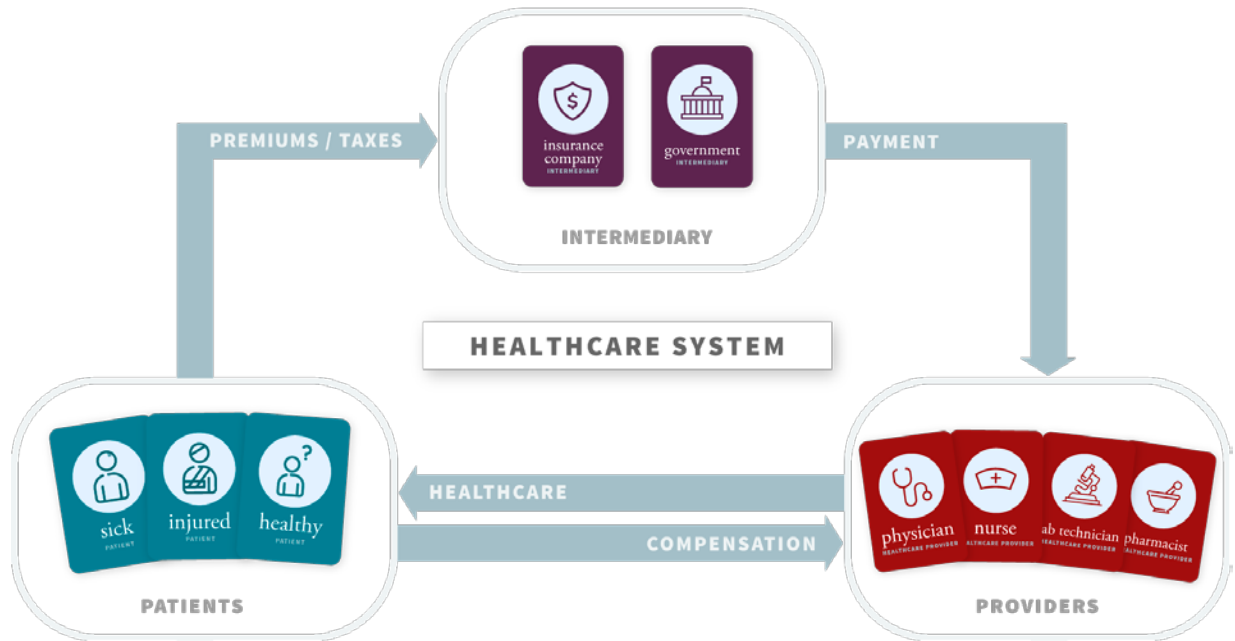


## INTERMEDIARIES

**Intermediaries:** Entities that collect funds from a group of people, pool the funds and use them to pay for health care for the people who are covered. Also called; private insurance companies, insurers, payers, health plans, or plans.

Two Types of Intermediaries:

1. Insurance companies
  - Private companies
  - Insurance policy - a contract that provides for paying the medical bills of the holder, perhaps under some conditions.
  - Individuals pay a fixed, known amount for the insurance premium, and in return they get a policy that removes the risk that they're going to face a problematic medical bill that they'd have to pay themselves.
2. Government payers
  - Refer to as a public intermediary
  - The program agrees to cover healthcare costs for some group of people, and then it collects funds from the population to finance this.
  - The funds could be collected through the tax system, or in some cases it could be structured more as a premium



With intermediaries in the picture, funds can flow through the intermediaries from the patients to providers. On the one side, we have a group of people we'll call a population, some of whom become patients. The population pays money, either through premiums for private insurance, or through taxes or other fees to a government intermediary. Or maybe both. The intermediaries pool the risk and pay health care providers for providing care to patients. Normally a lot of the payments for providers go through intermediaries, so an arrow goes directly from the patients to the providers showing some payments that still go by this route.

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## Terminology

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- Enrollees/members/beneficiaries: The people with a policy from the insurer
- Coverage: When people have a policy
- Premium: The price to buy a policy

## OTHER PLAYERS IN THE HEALTH CARE SYSTEM

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### Regulatory Role of Government

- Oversight of private intermediaries
- Licensing and oversight of healthcare providers

## Companies

- Provide goods and services used by providers and patients
- Develop drugs and devices, manufacture them, and sell them for use in the healthcare system.
- Operate in and around the healthcare system providing services to health care providers, or patients.
  - Create data systems and computer systems that can manage patient health records (electronic health records) or related applications.
  - Create applications for patients that they can use to manage their health

## Others

- Professional societies and related organizations that work with providers
- Medical Associations that work with physicians
- Groups and professionals working on public health
- Philanthropies that help provide or finance care for people that might face challenges with that

## TYPES AND ROLES OF INTERMEDIARIES

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### Intermediary roles:

1. Pool risk
2. Manage use and cost of health care
  - HMOs, PPOs, high deductible plans

### Different intermediaries serve different parts of the population:

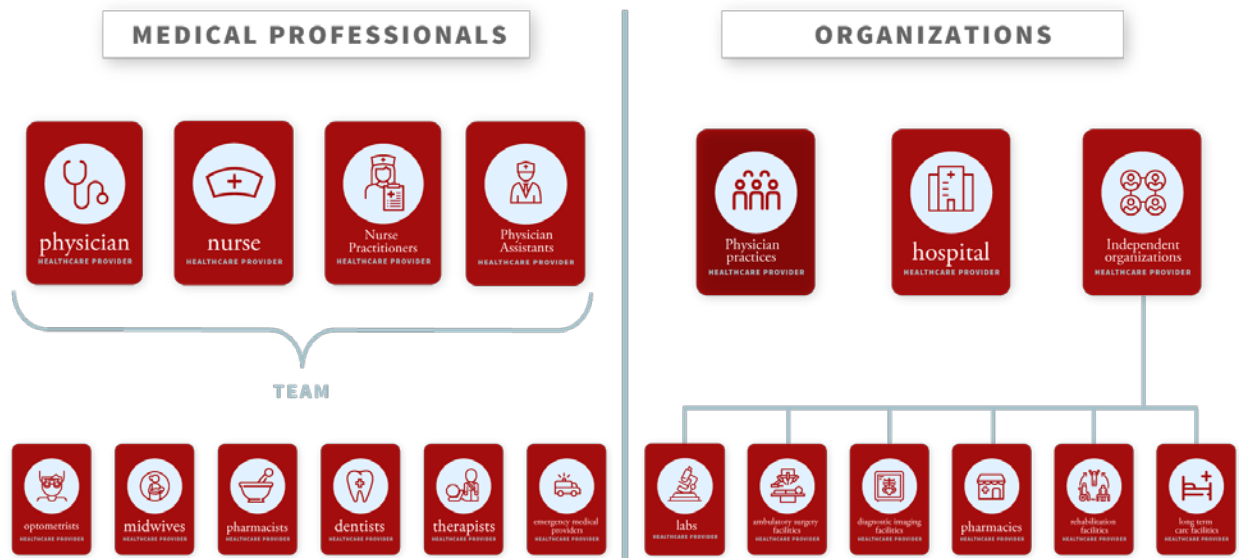
- In the US, the Medicare program is a large government program and one of its key roles is to cover people over age 65
- Sometimes intermediaries focus on particular geographic areas but don't operate throughout a country.

### People have multiple choices of intermediaries, and opt for one or the other:

- In the UK, the National Health Service is a large public intermediary that is available to everyone. But there is also the option for people there to buy private insurance, foregoing the coverage offered by the NHS and opting to pay premiums for a private policy.

- In the U.S., most people under age 65 get their insurance from a private insurance company, and there are many different insurers that offer coverage, which individuals can choose between.

## TYPES AND ROLES OF PROVIDERS



Providers can be organized into two groups:

### 1. Medical professionals

#### a. Physicians

- Specialty - a particular area of medicine for which physicians have completed focused training.
- Outpatient setting - outside a hospital, for example in a physician office or clinic. generally same day
- Inpatient setting - in a hospital, generally where the patient stays overnight or longer

#### b. Nurses

- Includes nurse practitioners and physician assistants; Often think of people in this group as working as part of a team with physicians to deliver medical care

#### c. Other professionals - Optometrists, midwives, pharmacists, dentists, therapists, emergency medical providers, and many others.

### 2. Organizations

#### a. Physician Practices

- The organizations providing the administrative and physical infrastructure

- Mainly think of practices as providing infrastructure for outpatient care
- b. Hospitals
  - Organizations that house facilities for providing generally more complex care for inpatients.
  - Hospitals have beds, and often house more complex equipment, facilities for surgeries, advanced testing and imaging, and related
- c. Independent Organizations
  - Ones that provide facilities in which some types of medical care can be provided but are not part of a physician practice or a hospital
  - There are a wide variety of these: Laboratories, ambulatory surgery facilities, diagnostic imaging facilities, pharmacies, rehabilitation facilities, long term care facilities, and many others.
  - Organizations can be owned and operated under different arrangements

## Providers and Levels of Care

### QUATERNARY CARE

The most specialized care for rare and very complex conditions

### TERTIARY CARE

Referred from secondary or primary care physicians

Provided mostly by highly specialized physicians often in large referral centers

### SECONDARY CARE

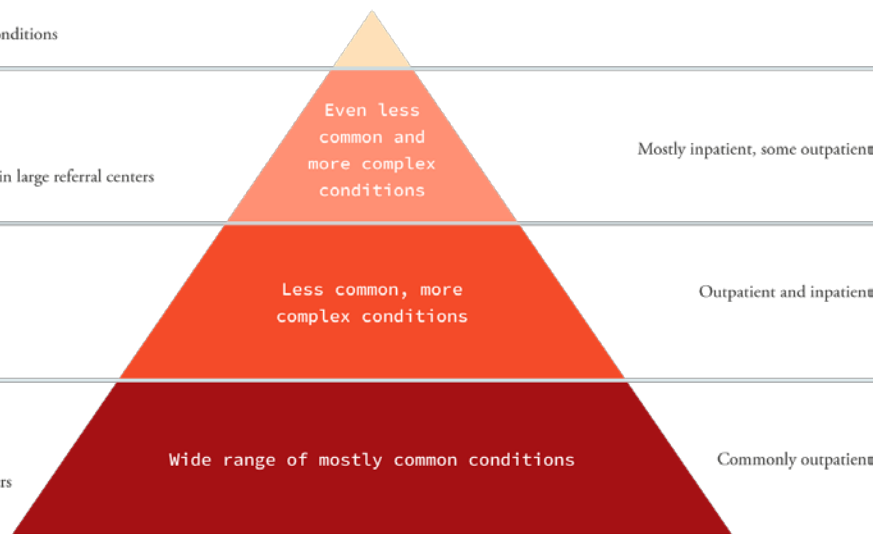
Often referred by primary care

Provided by specialists/consultants – e.g, cardiologist

### PRIMARY CARE

Often first point of entry for medical care

Provided by primary care physicians, nurse practitioners and physician assistants



1. Primary Care - Often first point of entry for medical care. Provided by primary care physicians, nurse practitioners and physician assistants
2. Secondary care - Often referred by primary care. Provided by specialists/consultants.
3. Tertiary care - Referred from secondary or primary care physicians. Provided mostly by highly specialized physicians often in large referral centers.
4. Quaternary care - The most specialized care for rare and very complex conditions.

## THREE KEY CHALLENGES FACING HEALTH CARE SYSTEMS

Health economists or health care policy analysts take a look at a measure of healthcare spending as a percent of the gross domestic product, the GDP, of a country.

- Percent of GDP allocated to health care  
= Healthcare spending / gross domestic product (GDP)

Spending has gone up steadily over time, Why?

- Populations getting older
- Population income and living standards have increased
- Price increases
- Increases in utilization resulting from technological advances

### 3 Challenges for Quality of Care

1. Underuse: One finds services that we would like everybody to be doing or getting, but we don't get enough of
2. Overuse: Situations where services don't create value, or even sometimes where they can lead to problems
3. Misuse: Making errors. Using a treatment when it should not have been used.

### Access Challenges

- Lack of insurance coverage
- Socioeconomic disparities
- Differing levels of education
- Cultural issues
- Language barriers
- Lack of providers

## LESSONS FOR AI AND DATA

We can use the ideas about the healthcare system to make a couple of observations relevant to artificial intelligence and the data that might underlie AI work.

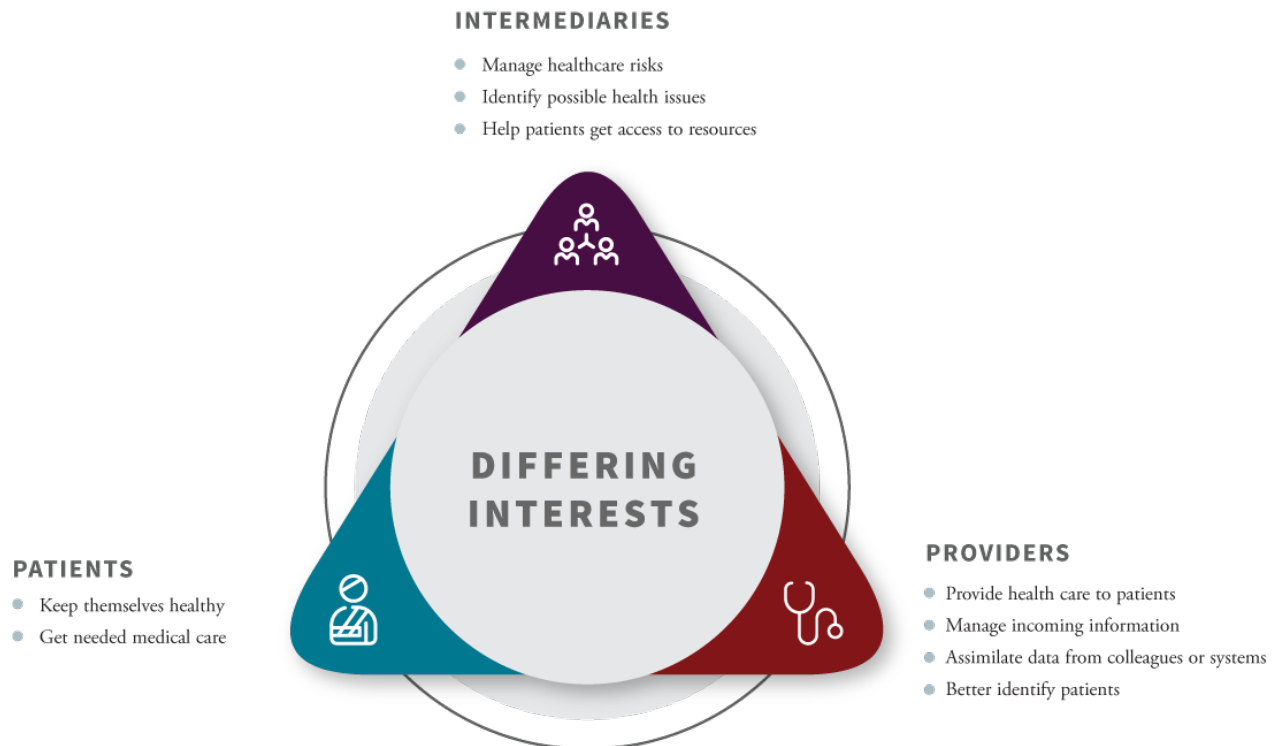
**Wide Variety of players in the healthcare systems:**



- Intermediaries - Looking for tools that can help manage healthcare risk. Tools that can help them identify possible health issues that they can see coming in their population where they could try to get involved and help those patients get access to resources that would help
- Providers - Trying to provide health care to their patients. Need a tool that manages incoming information from patients, and sorts that out into diagnoses and treatment plans. May benefit if they can better identify patients likely to need services in the future.
- Patients - Interest in keeping themselves healthy and finding out whether they might need medical care so there may be patient directed solutions

## Data:

Paying attention to who will have data, and why they have it



1. Providers - electronic health records, or EHR data. The main purpose is to aid providers in working with patients. It may be heavily regulated because of privacy concerns.
2. Intermediaries - Interested in paying providers, may have records associated with that. Sometimes this can be very informative and tell things about what patients are getting services and how much they cost, but it'll be different from electronic health record data.
3. Government - Often keep track of the services that they're regulating. They might keep track of data on hospitals that they've licensed to operate. They might keep track of physician licenses to practice medicine.

4. Pharmacies - Pharmacies may collect data on the drugs that they sell.

It is important to pay attention to the fact that the data come from different sources, for different reasons, with different issues.