

Systems Theory



Objectives

- Students will be able to:
 - Describe systems theory and its components.
 - Describe a health care delivery system model.
 - List and describe levels of medical organizational structure.



System Definition

- <http://study.com/academy/lesson/systems-management-theory.html>
- A system is an orderly and complex arrangement of parts.



What are some examples of different types of systems?



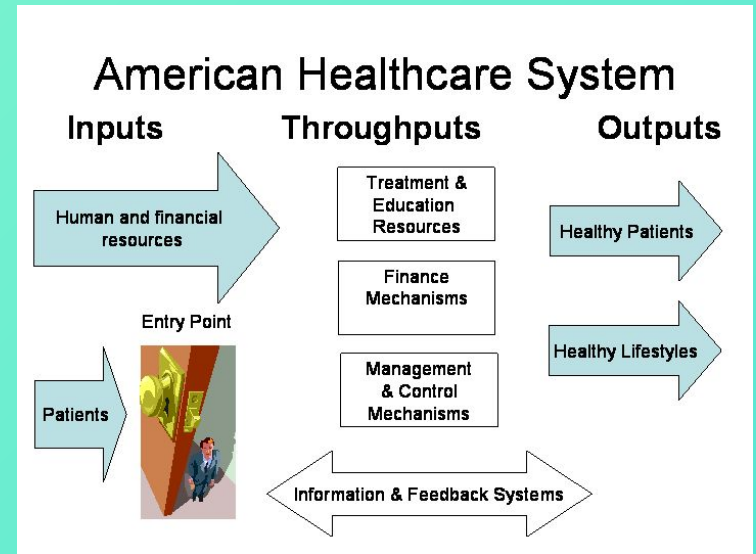
There are many types of systems:

- Physiological Systems: The digestive system, neurological system, and circulatory system
- Economic Systems: Capitalism and Socialism
- Computer Systems: Network, mainframe, and PC computer systems



Systems Theory

- A way of studying a system as one unit, instead of individual parts.
- By examining a system as a whole, it is easier to understand how each part contributes to the overall mission



Systems, in general, have the following elements:

- Input: Resources entering the system
- Throughput: Work done on those resources used to produce a product
- Output: The final product
- Feedback: Information taken from the output to control or correct errors in throughput

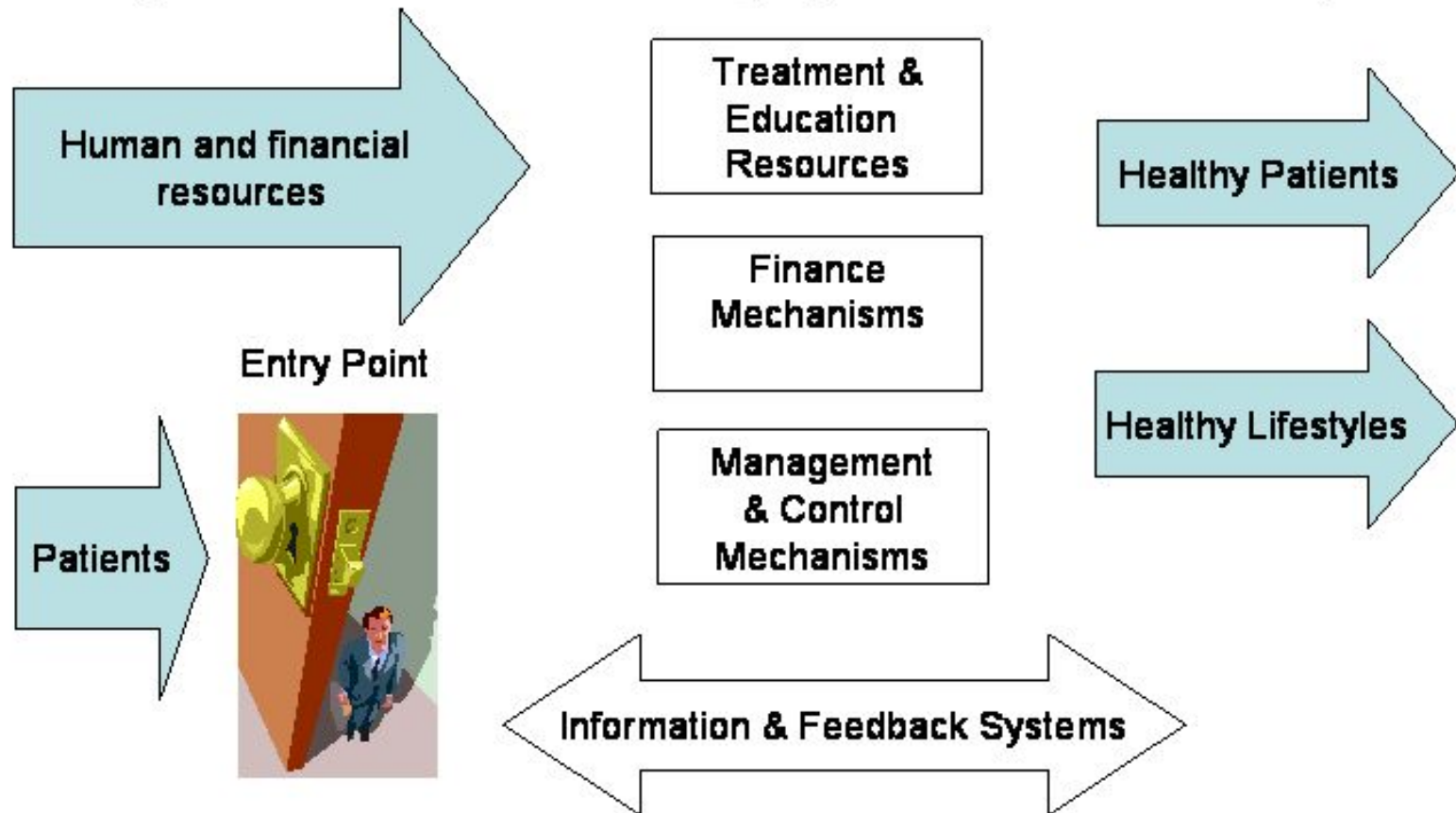


American Healthcare System

Inputs

Throughputs

Outputs



Systems Thinking

- One approach to problem solving is *systems thinking*, or *systems analysis*.
- It expands analysis to include the system as a whole, and the relationship of interconnected parts.
- It recognizes that the whole is greater than the sum of the parts.

Backwards Thinking

- Systems thinking involves *backwards thinking*.
- It begins with the end objective, and works backwards, analyzing the relationship of each component to the final objective.

Example of Backward Thinking

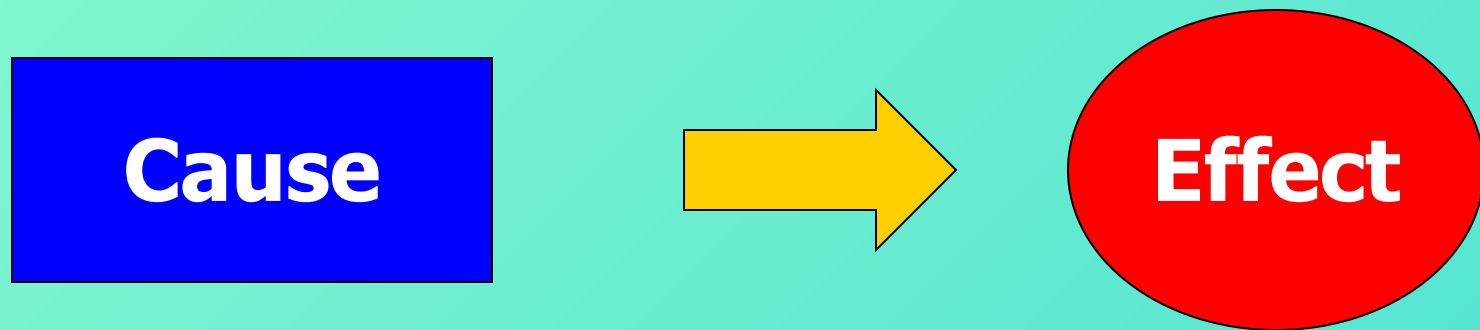
If the objective of a team is to produce a low cost but high quality medical product, then backwards thinking would start with the final end product, then evaluate each input and throughput to see if:

- It was necessary to the manufacture of the product
- It increased quality
- It reduced cost



Advantages of Systems Thinking

- **Focus:** Systems thinking allows problem solvers to identify cause and effect relationships. It focuses on the activities necessary for change.



Advantages of Systems Thinking

- **Teambuilding:**
Systems thinking helps team members identify the objective of the team, and understand how their individual activities contribute to that objective.



The American Healthcare Delivery System

- One of the largest and most complex systems in the world.

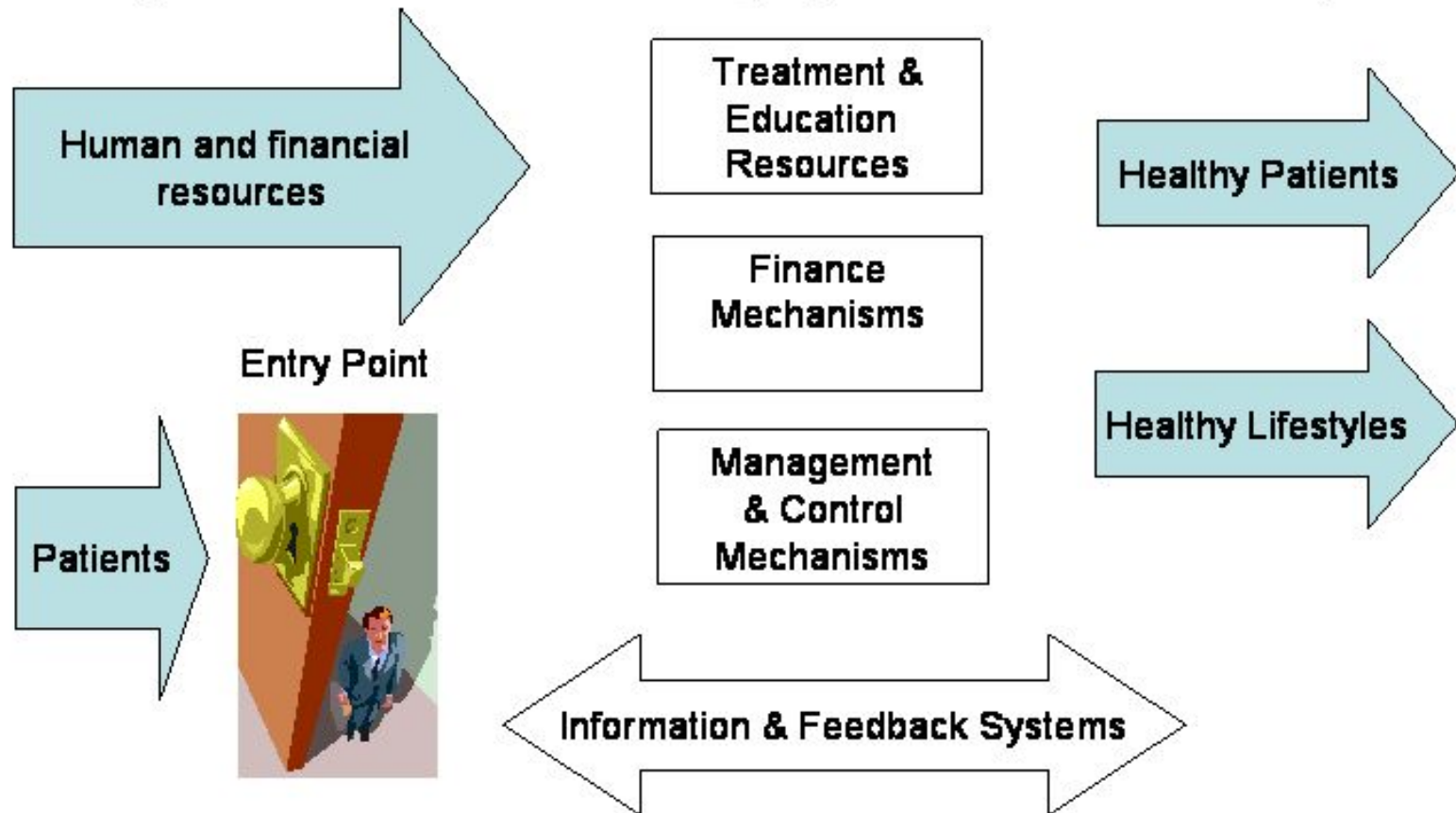


American Healthcare System

Inputs

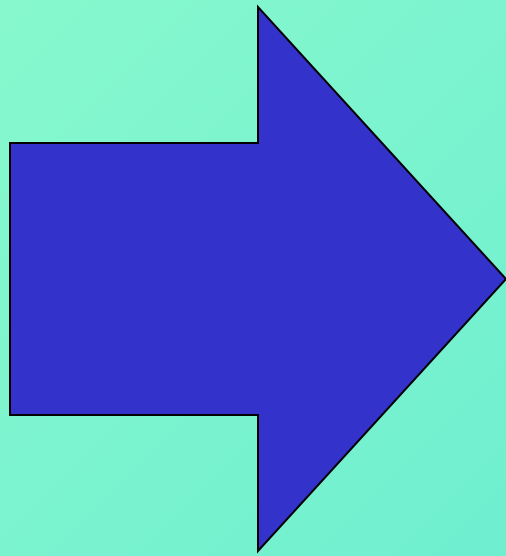
Throughputs

Outputs



Let's discuss each of the elements...



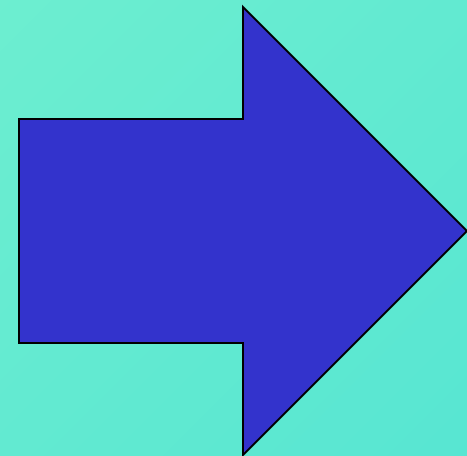


Input



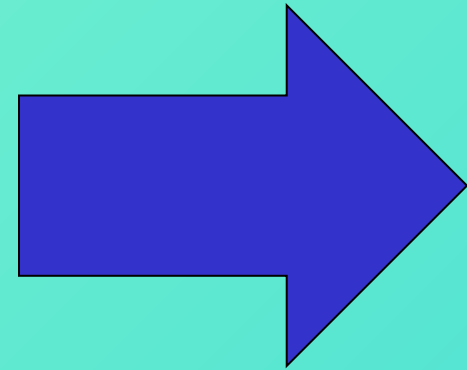
Inputs

- Human and financial resources
- Patients



Inputs

- Turn to the person on your left and discuss what would be included in Human resources and write those in the first arrow on your chart

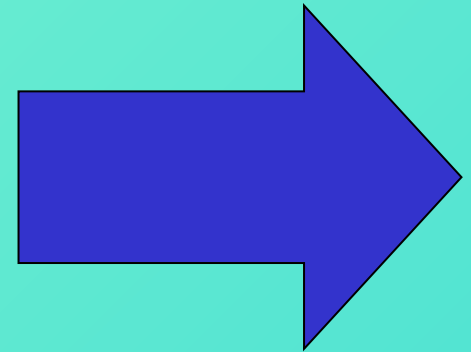


Human Resources

- **Human resources**--the professionals who diagnose and treat patients, as well as the personnel who provide support services.
- Examples of people in these roles are:
 - Doctors
 - Nurse
 - Nurse aides
 - Respiratory, physical, occupational therapists
 - Dieticians
 - Housekeeping

Inputs

- Turn to the person on your right and discuss what would be included in Financial resources and write those in the second arrow on your chart

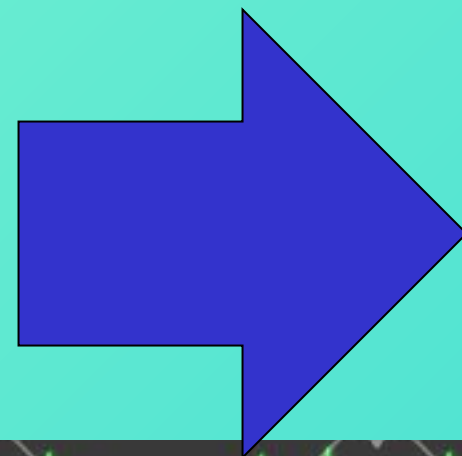


Financial Resources

- **Financial resources**--the money coming into the system in the form of:
 - Patient payments
 - Self payments
 - Insurance payments
 - Government funding
 - Tax money
 - Grants
 - Donations

Inputs

- Turn to the person on your left and discuss what types of services the patients are entering the system to receive and write those in the rectangle on your chart.



Patients

- Individuals who enter the system for preventive, diagnostic, or treatment healthcare services.



Entry Point

- An efficient healthcare delivery system must have a well defined entry point so that people know where they are to enter into the system.



Entry Point

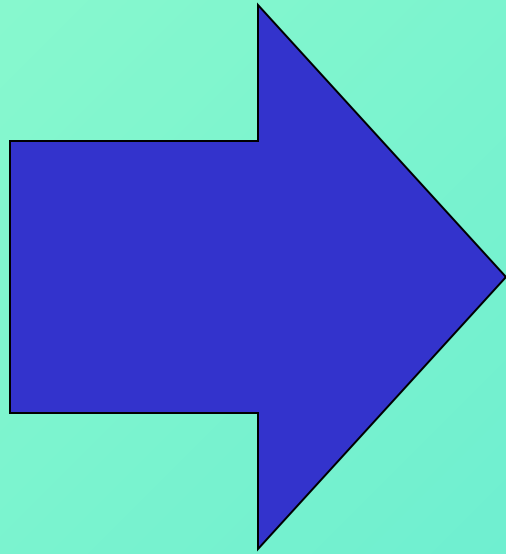
- How does a 55 year old male with vertigo know where to enter the system?
 - An ambulance?
 - A general practice doctor?
 - A neurologist?
 - The emergency center?

A well-defined entry point

- On the line provided write well above it "A well-defined entry point"
- Then turn to the person on your right and discuss what you think a well defined entry point means. Write this below where you wrote "A well-defined entry point"

A well-defined entry point provides:

- Triage--screening to determine priority of treatment.
- Timely entry into the system
- Access to cost effective resources



Throughput



Throughput

- Throughput is the step where the patient is treated.

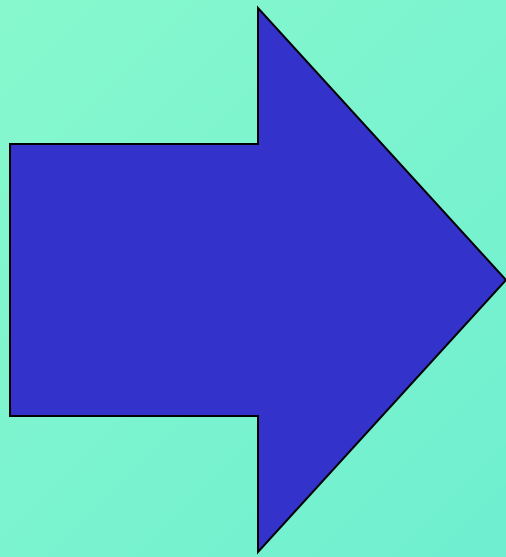


What kind of services are provided in “throughput”?

- Discuss as a table group the types of services that patients would receive in the “throughput” stage.
- Write them in the squares on your chart.

What kind of services are provided in “throughput”?

- **Preventive** - healthcare services designed to keep the student well
- **Diagnostic** - healthcare services to find out what is wrong with the patient
- **Treatment** - healthcare services to cure the patient
- **Education** - information about their condition and how to manage it, information about prevention of conditions, etc.



Output



Output

- The product or service which results from the system's throughput (the work done to produce the product)
- How do you think we should define the product offered by the healthcare delivery system?



Output

- What do you think is the “end product” we are looking for from a “healthcare encounter/experience”?
- Turn to a person at the table next to yours and discuss this.
- Write these in the hearts on your chart.

Output

- The “end product” we are looking for from a “healthcare encounter/experience” could be many things:
 - Healthy patients
 - Healthy lifestyles
 - Quality of life
 - Dying with dignity

Feedback

- How do you think feedback is received in a healthcare setting?
- Discuss this with your table group and write it in the double arrow on the lower right of your chart.



Feedback

- Could be measurable objective information or information of a more subjective nature.
 - Completed patient surveys after their experience
 - Information received verbally from a patient or their family
 - Statistics compiled from outcomes being measured.

The healthcare delivery system is like a mobile

- Movement or pressure on one component exerts pressure on others parts.



Summary

- *The healthcare industry is a complex system with many interrelated components.*
- *It is impossible to change one component of the system without influencing others.*
- *Some people have attempted to fix the American healthcare delivery system by focusing on one or more "broken components."*
- *By failing to consider the "big picture," they have often been met with unintended consequences.*
- *Those wishing to address problems of quality, cost, and accessibility must take a systems approach.*