

Unit Two - Law and Order

System Theory - Lecture Notes

Based on information developed by Bonnie L. Jones, RN, MSN, CNAA – Jones Health Care Consulting for the National Consortium on Health Science and Technology Education, Feb. 2002

Introduction

- Have you or any of your family ever been sick?
- Where have you received care?

Subsystems

- Generally health care systems are categorized based on the level of care that is provided within each system.
 - Acute care
 - Extended care
 - Home care
 - Ambulatory care
- How would you define these levels of care?

Acute Care

- An environment in which health care services are provided to patients with severe symptoms.
- Patient is usually seen within a hospital/ inpatient care setting.
- Requires round the clock care by a team of skilled health care workers.
- A variety of illnesses/conditions and all age categories.
- Hospitals
- Emergency Rooms
- Critical Care
- Surgery Centers
- Birthing Centers
- Acute Drug Rehabilitation Centers
- Hospice

Extended Care

- Provided at a lower level than acute care; however, the patient is not critically ill or in need of a critical level of health care intervention.
- Patient does not require round the clock assistance.
- Recuperating or is chronically ill and in need of additional health care services.
- Skilled Nursing Facilities (SNF)
- Nursing Homes
- Convalescent Care Facilities
- Residential Care
- Rehabilitation Centers
- Inpatient Hospice

Home Care

- Patient is stable enough to be cared for in the home; however, is not well enough to be transported back and forth to the clinic or doctor's office.
- Health care providers come to the home on a periodic basis to administer medications and/or treatments. They generally do not stay with the patient.
- Family or caregivers take care of patient's daily needs.
- Home visits
 - RN: Registered Nurse
 - NA: Nurse Assistant
 - PT: Physical Therapist
 - Social Worker
- Hospice – assistance to patients with a terminal illness (within 6 months of dying; no heroic measures to keep them alive).
- Durable Medical Equipment

Ambulatory Care

- Comes from the word “ambulate” which means to walk.
- Refers to an outpatient health care setting (that you walk to and walk from).
- Clinics
- Physician Offices
- School Nurse
- Mobile Clinics
- Public Health
- Rehabilitative Clinics – PT/OT
- Mental Health Clinics
- Dentist Offices

Health Care System Interface

- Patients move between different levels of health care.
- Example:
 - Elderly patient who has fallen and broken his hip.
 1. **Acute care setting** – admitted to hospital, surgery, IV pain medication, extensive physical care including physical therapy. Now able to get out of bed, walk using walker, is eating well.
 2. Patient is transferred to **Extended Care** as he is not critically ill but does require round the clock assistance. PT continues.
 3. When the patient can move safely around and no longer needs 24 hour care, he can be transferred home. A **Home Health Care** nurse verifies patient safety and transition into this environment. Plan for home PT is established and care continues at home until patient is independent and caring for himself.
 4. **Ambulatory Care** – Patient will have scheduled appointments with doctor(s) and physical therapist to follow up and continue care.

Standards & Accreditation

- Licensing and accrediting agencies establish standards and monitor health care's compliance to these standards.
- What happens if health care organizations and/or facilities do not maintain the regulations?
 - Will not be allowed to operate – doors legally closed.
 - Will not be eligible for federal, state, and/or county funding.

Regulatory Agencies

- Acute Care, Extended Care, & Home Care
 - State Dept of Health and Human Services (DHHS)
 - Regulations may vary by state.
 - Mandatory accreditation.
 - Cannot operate without current DHSS licensure.
 - JCAHO – Joint Commission on Accreditation of Health Care Organizations.
 - Voluntary accreditation, however State and Federal monies (Medicare, Medicaid) are paid only to hospitals and facilities that are fully accredited.
- Ambulatory Care
 - NCQA – National Committee for Quality Assurance
 - Managed Care Organizations, Behavioral Care, and Preferred Provider Organizations.
 - JCAHO – Joint Commission on Accreditation of Health Care Organizations.
 - Voluntary accreditation, however State and Federal monies (Medicare, Medicaid) are paid only to facilities that are fully accredited.

Paying for Health Care

- If the total annual cost of our nation's health care were divided by the total population, each person's share would be about \$5,400. For a family of four, that would be over \$20,000 per year.
- Most of us don't have that much money laying around to pay for health care.

Who Pays For Health Care?

- Health care delivery systems account for approximately 14% of the gross national product.
 - That means that of every dollar you earn, approximately 14 cents of that dollar will be spent on health care.
 - By 2014 health care costs will increase to 19%.
- How is health care paid for?
 - Insurance.
 - Self-pay (out of pocket).
 - Employer paid health insurance.
 - Government paid programs.
 - Volunteer agencies & privately funded health programs.

No Health Insurance

- In 1999, 42 million Americans (nearly 18% of the total non-elderly population) were uninsured.
- Low-income Americans (family of 3 who earn less than \$26,580/yr) run the highest risk of being uninsured.
- Nearly 40% of the poor and 30% of the near-poor lack health care coverage.
- The majority of the uninsured (83%) are in working families.
 - More adults than children are uninsured.
 - Medicaid and State Children’s Health Insurance Programs (CHIP) provide insurance coverage for many children.
 - Low-wage workers, unskilled workers, and employees in small business are also more likely to be uninsured.
- The reason so many Americans are uninsured is due to the expense of insurance.
 - Employers are less likely to provide insurance to low-wage workers and these workers are less able to privately purchase insurance.
 - State Medicaid programs help to fill the gap, however state programs vary in their scope and breadth of services.
- Impact:
 - Nearly 40% of the uninsured have no regular source of health care and may forgo needed care.
 - Uninsured children are much more likely not to have medical care for common conditions (ear infections), and also less likely to receive medical attention when they are injured.
 - Both uninsured adults and children are less likely to receive preventative care.
 - Uninsured are more likely to be hospitalized for controllable conditions (such as pneumonia or diabetes) than insured persons.
 - Due to a delay in accessing care.
 - Cancer death rates are generally higher in the uninsured due to delay in preventive care and/or delay in needed care.
 - 30% of the uninsured report that medical bills have had a major impact on their families’ lives.

Government Paid Programs

- Medicare
 - Largest federal program.
 - Established in 1965.
- Military, Veterans, Native Americans, and Federal Prisoners
- Medicaid
 - State programs that pay for services to persons who are medically indigent, blind, or disabled.

Medicare

- Elderly persons over age 65 are covered with health insurance through Medicare.

- Some transplant patients and patients who are permanently disabled may also be eligible for Medicare coverage.
- Medicare does not cover all health care expenses including medications.
- Part A – provides for inpatient care (for all).
- Part B – provides for outpatient care (patient pays a premium and deductible).
- Major changes to Medicare benefits literally requires an act of Congress.

Medicaid

- Health insurance program for certain lower income people or those with very high medical bills.
 - Each state administers their own program.
 - About 33 million Americans are covered.
 - No co-payment or deductibles.
 - Generally only covers basic medical services.

Military Health Care

- U.S. Government provides health care benefits for families of current military personnel, retired military personnel, and veterans.
- Champus/Tricare programs – not an insurance plan.

Self Pay

- Those without any medical insurance pay for all medical expenses out of their own pockets.
- People can also purchase their own medical insurance.
 - It is generally more expensive to privately purchase health insurance than to be part of a group of people purchasing the insurance.

Employer Paid Insurance

- Employers with a large number of employees will often offer health insurance to their full-time employees.
 - This is an employment “benefit”.
- Purchasing insurance for a large group of people is more cost effective (volume discount).
 - Employer pays part or all of the monthly premium.

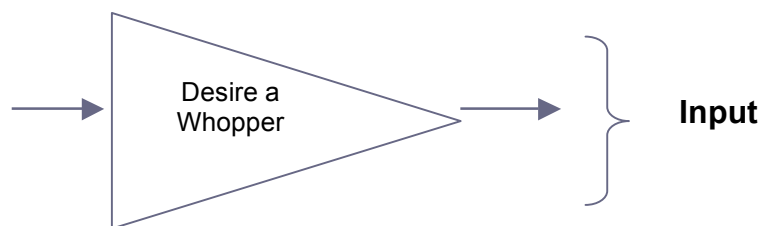
Medical Insurance

- Traditional Insurance – Third Party Payers:
 - Insurance covers a percentage of the cost of covered medical care. Subscriber pays remainder as well as costs outside the agreed policy.
 - Examples – Blue Cross Blue Shield.
 - You can go to any provider or facility that is covered under your policy.
- Health Maintenance Organization (HMO’s):
 - Organization that provides the delivery of hospital, physician, and other health care services to an enrolled population (members) for a fixed sum of money.
 - Members must obtain care from the HMO.

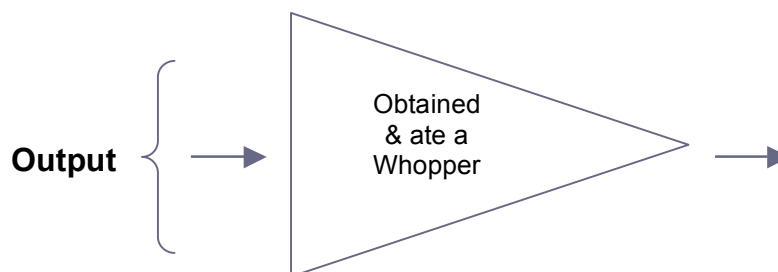
- Example: Kaiser Permanente.
- Preferred Provider Organizations (PPO's):
 - Groups of physicians and facilities who work together to provide comprehensive health care at a reduced cost.
 - Subscribers agree to see providers on the PPO list – if they see other providers, they pay a larger fee.
- Managed Care Organizations:
 - Organizations offering all levels of care and a variety of types of insurance programs (including HMO's, traditional insurance, and PPO's).
 - Care is “managed” by a primary care physician and, if needed, referrals are made to specialists.
 - This “gate-keeping” by a primary physician is designed to help keep costs lower.
 - Examples – IHC, Pacificare

Systems Theory

- What did you do last night?
 - You went to Burger King . . . Why?



- Did you get what you wanted?
- Were you satisfied?
- Was the cost acceptable and will you return to Burger King again for more food?



- **System:** A set of objects or elements in interaction to achieve a specific goal.
 - The function of any system is to process energy, information, or materials into a product or outcome for use within the system – or outside the system (environment), or both.
 - All systems have common elements:
 - Input, Output, Feedback Loop, Throughput, Environment, Boundaries, Equilibrium, Constraints.

- **Input:** The business the organization is in.
- **Output:** The products of the business.
 - For a hospital, output would be the measurement of the quantity and quality of care that the patient receives as well as their satisfaction with that care.
- **Feedback Loop:** Environmental reaction to the output that determines future input.
 - If customers are dissatisfied with the service or quality of care, they will not return; thereby decreasing the input, and vice versa.
- What is involved to get you a good Whopper?
 - **Information?**
 - A collection of data which allows you to perform the tasks at hand.
 - Policies and procedures, recipes, menus, consumer expectations.
 - **Material?**
 - Raw materials to produce the product.
 - Hamburger, buns, stoves, refrigerators, paper goods.
 - **Resources?**
 - Human resources needed to produce the product.
 - Chefs, fry cooks, waitresses, managers, accountants, shipping/receiving clerks, etc.
 - **Energy?**
 - Is produced and is the outcome from the interpersonal interchange, the decisions, the teamwork, and the ability to overcome barriers.
 - If the cook was not at work, could you produce a hamburger?
 - If the stove was broken, could you make a whopper?
- **Throughput:** The transformation process whereby inputs of information, materials, and energy (including human energy) take the raw products (inputs) and develop or transform them into the goods and services (outputs).
- **Environment:** Constraints that limit the flow across the boundaries of a system.
 - **Educational** – personnel trained to do the type of work you need.
 - **Sociocultural** – attitude of the neighborhood to your business, value of product related to cost.
 - **Legal/political** – regulatory standards which govern your business and the people who work in it.
 - **Economic** – ability of the business to survive economically in this area.
- **Boundaries:** Separates the system from the larger environment. Matter, energy and information flow back and forth across the boundary.
 - Example – Burger King and McDonalds are performing the same type of work and producing a similar product; however they are separate businesses.
 - **Open System**
 - Exchanges information, energy or material with the environment.
 - System achieves a steady state or dynamic equilibrium while retaining its capacity for work.
 - What fast food chains are viable in our community? Why?
 - **Closed System**
 - System does not interact with its environment, ex: A Rock.

- Have there been a store or fast food place in our community that has not be viable? Why?
- **Equilibrium:** The balance of matter, energy and information flowing back and forth across the boundaries of a system.
 - A system in equilibrium responds to disturbance from the outside by - -
 - Resisting or disregarding the disturbance, or protecting and defending itself against the intrusion.
 - Using homeostatic forces to restore the former balance.
 - Accommodating the disturbances or by achieving a new equilibrium.
- To be viable, a system must be:
 - Strongly goal-directed
 - Governed by feedback
 - Have the ability to adapt to changing circumstances.

Systems Theory - Example

- Discuss and complete a systems diagram of a school classroom.
 - Input: students wanting to pass a class; teachers desiring to teach students content; parents, school & district expectations for student achievement.
 - Output: students who have passed the class based on established standards; teacher feedback which reinforces desire to teach and stimulates personal learning.
 - Feedback Loop: test scores; teacher, student & parent satisfaction.
 - Throughput:
 - Information – state standards, core curriculum, resource materials.
 - Materials – textbooks, handouts, AV's, work books, desks, lights, heating/ac.
 - Resources – credentialed teachers, counselors, administrators, community partners.
 - Energy – interactive processes promoting learning.
 - Boundaries: the classroom, school, district, etc.
 - Environment:
 - Educational – shortage or wealth of credentialed teachers, training programs for teachers in area.
 - Sociocultural – parents, industry, teacher union, district enrolled in supporting educational process.
 - Legal/Political – ratio of teachers to students, support for new programs.
 - Economic – district funding, salaries, competition for resources.
 - Equilibrium: is this system in a steady state?
 - System receives enough information, energy or material from the environment to balance with the development of its product.
 - Open systems are capable of self-maintenance.
 - Closed systems have an internal loss of energy trying to produce the output/product.
 - **Insufficient input, throughput issues, unclear boundaries, need to spend resources protecting the boundaries.**
 - **No teachers, not enough funding for salaries or supplies.**

Factors Affecting Health Care Delivery

- Many factors can affect health care delivery system models:
 - Cost
 - Managed care
 - Technology
 - Aging population
 - Access to care
 - Alternative therapies
 - Lifestyle/behavior changes

Systems Theory - Example

- Now select a health care system to diagram.
 - Doctor's Office
 - Choose the care focus: Orthopedics, Pediatrics, Internal Medicine, Obstetrics & Gynecology, etc.
- Use Health Care Systems Model to diagram the system.
- EXAMPLE: An ambulatory family health care clinic. Hours of operation 0800-2000.
 - a. Input – Adults, children, infants requiring basic health care, preventative health screening, immunizations, treatment for minor illnesses and injuries.
 - b. Output- Healthier adults, children and infants who have received regular preventive care (immunizations, mammograms, blood tests) to prevent or detect illness early, receive treatment for non-acute illness/injuries, and education on personal health care.
 - c. Throughput-
 - Information: Department of Health & Human Services (DHSS) standards & JCAHO standards for ambulatory care, patient education materials for clients, staff policies and procedures, resource materials.
 - Materials: Clinic reception furniture & equipment; clinic room furniture & equipment (be specific - otoscope, ophthalmoscope, stethoscope, thermometers, etc.) Any special equipment for children or elderly clients.
 - Resources: Family Practitioner M.D., registered nurse RN, certified nurse assistant C.N.A., nutritionist (perhaps), receptionist, etc.
 - Energy: Dynamic interactive processes whereby clients learn how to take better care of themselves and their children.
 - d. Feedback loop- Clients who are healthier, know more about self-care, and satisfied.
 - e. Boundaries- can be defined physically as the office, etc. Care and teaching boundaries might be broader depending upon referral agencies.
 - Discussion point-Is this part of an HMO or group practice model? Will you need a transport system for acutely ill patients who present in the

clinic? Will you need a hospital that will accept your patients-physicians must have “privileges” in order to admit to a hospital?

f. External environment-

- Educational- Shortage or wealth of licensed/certified health care providers; university/college training program for health care workers in area.
- Socio-cultural- what are the economics of the neighborhood; what are the cultural beliefs about health care? An acupuncturist as part of your clinic might be valuable if your clients believe in Eastern medicine. Who are the payers for healthcare?
- Legal-political-DHSS, JCAHO. Are the people working for you performing within their scope of practice?
- Economic constraints: Is there competition for resources, how are you funded?

g. Equilibrium- is this system in a steady state? Is it interacting with the environment and getting what it needs to function as well as returning healthy clients back into the environment?

Quality and Value

- What was the last piece of clothing that you bought?
 - Which brand?
 - What makes that brand different?
 - How much does that brand cost?
 - Are there similar items at a lesser cost?
 - Why did you ultimately buy that product?
 - Why would you pay more for this item/brand when you could have bought a similar item for less?
 - Did a salesperson assist you?
 - Did the salesperson influence you to buy the product?
 - Would you return to that store or salesperson to purchase further items?
- **Quality:** A characteristic, property or attribute as belonging to or distinguishing a thing; respect for excellence, fineness, etc.
- **Value:** the relative worth, merit or importance; monetary or material worth; consider with respect to worth, excellence, usefulness, or importance.
- Are quality and value the same thing?
 - No – a lot of businesses equate quality with value.
 - For a teen, value in a shoe is “high fashion”.
 - For a teen’s mother who is buying a shoe for herself, fashion may or may not be value. She might be looking for durability, price, or comfort and fit.
- Customers almost without exception behave rationally in terms of their own realities and their own situation.
- The customer buys the satisfaction of a want. They buy value.

- Yet the manufacturer, by definition cannot produce a value. They can only make and sell a product.
 - A product has criteria, which defines its' level of quality.
 - The manufacturer then determines a cost for the product, the “monetary worth”.
 - The customer then determines whether he/she **wants (values)** the product, at that quality and price.

Quality and Value in Health Care

- Identify 5 factors that define **quality** in health care.
 - Example - Low number of deaths following an elective surgery.
- Identify 5 factors/things that define **value** in health care.
 - Example – you can get an appointment quickly, doctor spends time with you answering questions.

Current State of Health Care

- Health care has improved markedly over the centuries.
- We currently live longer and healthier lives than our forbearers, mainly because of advances in health care.
 - Medical research, professional training standards, nutrition, sanitation.
- The health care industry faces severe criticism for shortcomings such as:
 - Rising prices of health care and pharmaceuticals.
 - High error rates.
 - Extreme variations in patterns of practice.
 - Example – survival rate for open-heart surgery varies widely across the US based upon which health care facility performs the surgery.

Standards to Measure Quality

- To address the need to standardize practices and to measure and report quality to the consumers, standards have been developed to measure the quality of care.
 - JCAHO and NCQA
 - Standards for quality are imbedded in the regulatory standards and are now a major focus of health care.
- The standards for each accrediting body are extensive and cover the full range of activities within a health care system (acute or ambulatory).
- Standards focus on all aspects of patient care that are essential to quality patient care and a safe caring environment.

Examples

- JCAHO – continuum of care function
- NCQA – preventive care

Bridging Quality & Value with Customer Service

- If quality can be measured by standards, why do we as consumers not choose health care providers based upon hard, cold data?
- Health care is an intimate, intensely personal and intensely human experience.
- Customers tend to use service dimensions to judge overall quality.
 - In other words, they evaluate the technical aspects of a product (even when they lack the expertise to do so) by judging service features as measurements of quality.
- These service features in health care include:
 - Promptness of service, level of confidence projected by the staff, completeness of explanations given by ALL levels of employees.

Seven Sins of Service

- The key criteria that customers use to explain why they lost loyalty to a particular service provider.
 - Apathy
 - Brush-off
 - Coldness
 - Condescension
 - Robotism
 - Rule book
 - Runaround

Customer Service

- Discuss your experience with any of the 7 sins of service.
 - How did it make you feel?
 - Do you continue to shop or go to this facility/agency?
 - Identify approximately how many people you told about this “bad” experience?
- If you satisfy one customer, he or she tells four others.
- If you alienate one customer, he or she tells ten or possibly more.
- Thus, when you annoy one customer, you have to satisfy three just to stay even.
- 30% of persons who have problems do not complain (so you cannot fix the issue) and of that 30%, only 9% will return.

Systems Analysis

- On the operational side, evaluation of productivity, cost effectiveness, and efficiency are the “bottom line”.
- If employees are not working at maximum productivity (or at least close to it), and if the agency is not being cost effective and efficient, the organization cannot survive.
- Each of these factors are measured and considered on a regular basis.

Teamwork

- In almost any health care career, you will be a part of an interdisciplinary health care team.
- Teamwork is an advantage for the health care delivery system because it:
 - Holds potential for more efficient delivery of care.
 - Maximizes resources and facilities.
 - Decreases burden on acute care facilities as a result of increased preventive care.
- Example
 - Surgical Team:
 - Admitting clerk (admission information)
 - Insurance representative (approval for surgery)
 - Nurses or patient care technicians (prep patient)
 - Surgeons, one or more
 - Anesthesiologist
 - Operating room nurses
 - Surgical technicians
 - Housekeepers (clean and sanitize OR after procedure)
 - Sterile supply techs (clean instruments)
 - Recovery room personnel
 - Dietitian
 - Social worker
 - Physical therapist
 - Occupational therapist
 - Home health personnel
- Each team member has an important job to do – they are interdependent.
- When the team members work well together, the patient receives quality care.

Bringing Quality and Value Together

- The challenge for the health care industry is to provide high-quality care and caring.
- The industry must back up clinically excellent health care with a concerted effort to satisfy customers and improve their caring attitude.

Environment:

Constraints: Educational, Sociocultural, Legal/Political, Economic

