



Unlocking The History of Medicine

Primitive Times

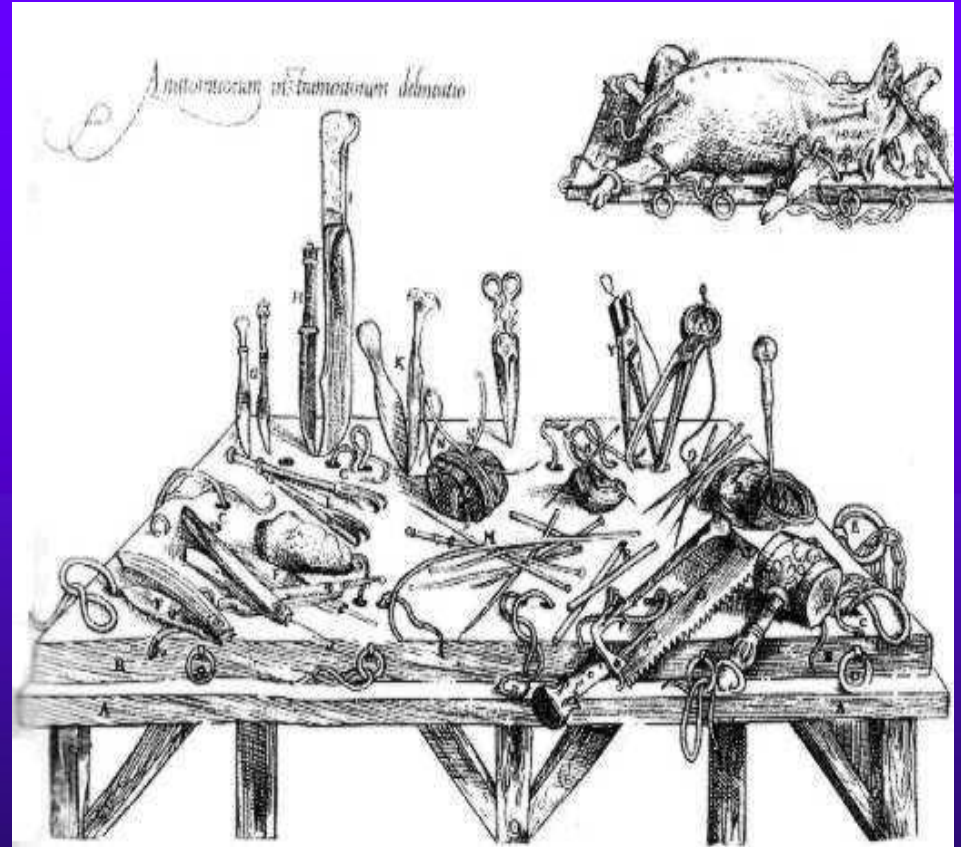
4000 BC – 3000 BC

- ◆ Believed that illness and diseases were a punishment from the Gods
- ◆ First physicians were witch doctors who treated illness with ceremonies to restore health.
- ◆ Most religions did not allow dissection, or cutting apart of the body.



How did people learn about body parts?

- ◆ Animals were frequently dissected





Prehistory and the Ancient World

- ◆ The Gods were responsible for good health or illness
- ◆ Healers used natural remedies from herbs
- ◆ Surgery was performed without the use of infection control or anesthesia
- ◆ Medicine was combined and practiced with religious rites

Trepanation



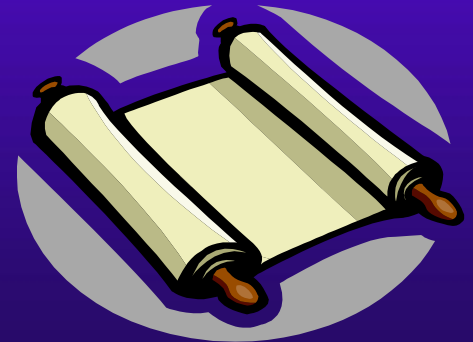
- ◆ One of the first surgeries
- ◆ A hole was cut into the skull to release demons



Ancient Egyptians

3000 BC – 300 BC

- ◆ First to keep accurate health records
- ◆ Wrote prescriptions on papyrus
- ◆ Physicians were priests
- ◆ Temples were used as places of worships, medical schools, and hospitals



Ancient Egyptians

3000 BC- 300 BC

- ◆ Embalming led to increased understanding of anatomy and diseases
- ◆ Was done by special priests, not doctor priests
- ◆ Gauze used to wrap bodies is much like the surgical gauze used today
- ◆ Strong antiseptics kept bodies from decaying



Ancient Chinese

1700 BC–AD 220

- ◆ Religion prohibited dissection
- ◆ Believed you had to treat both the body and spirit



- ◆ Recorded a pharmacopoeia of medications based on herbs
- ◆ Therapies included acupuncture



Ancient Greeks

(1200 BC – 200 BC)

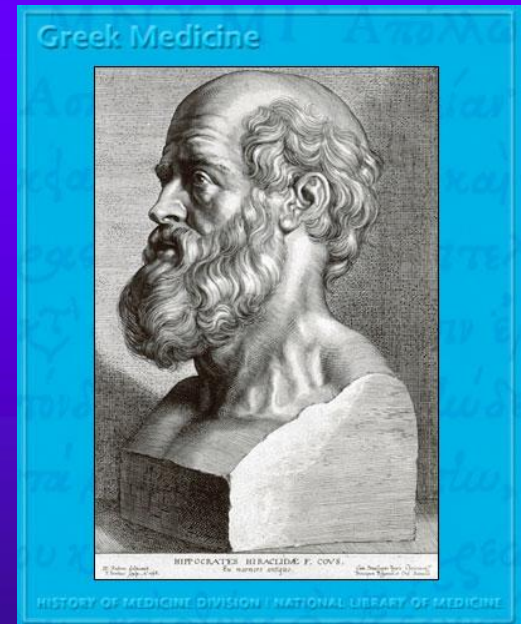
- ◆ Made observations about the human body and the effects of disease that led to modern medical sciences
- ◆ Believed illness is a result of natural causes



Ancient Greeks

(1200 BC –200 BC)

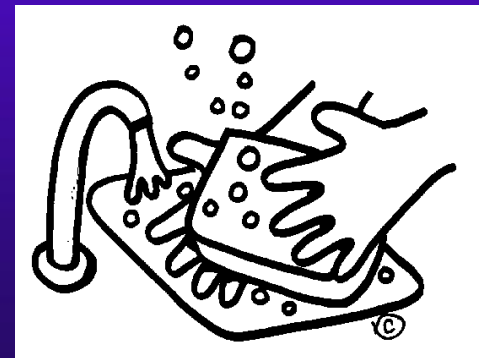
- ◆ Hippocrates lived around 400 BC
- ◆ Was given credit for turning away from divine notions of medicine
- ◆ Believed that changes in diet, beneficial drugs, and keeping the body “in balance”



Ancient Greeks

(1200 BC –200 BC)

- ◆ Used therapies such as massage, art therapy and herbal treatments
- ◆ Discovered that diet and cleanliness could prevent disease



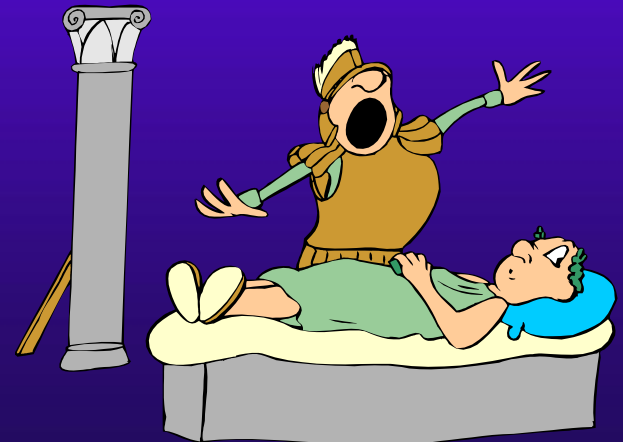
Greeks

- ◆ Claudius Galen was born in 131 AD
- ◆ Was a Greek physician who went to Rome and revived the ideas of Hippocrates and other Greek doctors
- ◆ Books were scarce, but Galen documented the importance of the spinal cord and described a tracheotomy

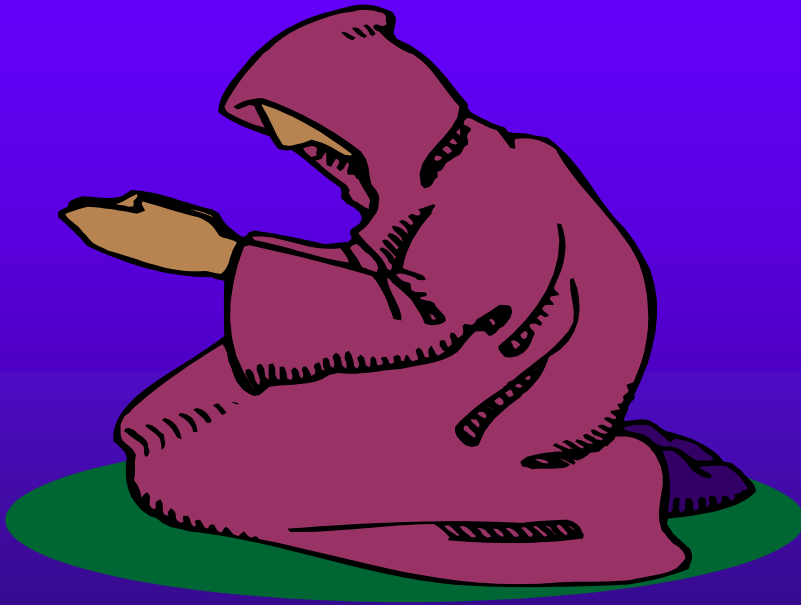


Romans (753 BC – AD 410)

- ◆ They established the first public health and sanitation systems by building sewers and aqueducts
- ◆ Treated disease with diet, exercise, and medication
- ◆ Rooms in doctors houses where they cared for soldiers became the first hospitals



Dark Ages (AD 400 – AD 800)



- ◆ Study of medicine was prohibited
- ◆ Emphasis was on saving the soul
- ◆ Monks and priests treated patients with prayer

Middle Ages (AD 800 –AD 1400)

- ◆ Bubonic Plague killed 75% of the population in Europe and Asia
- ◆ Medical Universities were created
- ◆ There was renewed interest in medical practices of the Greek and Romans

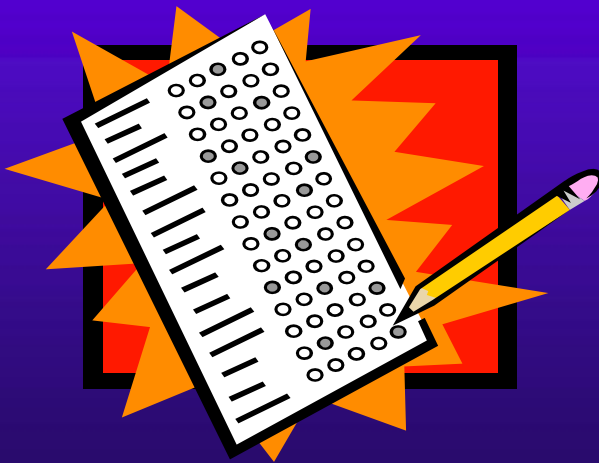




Middle Ages (AD 800 –AD 1400)



- ◆ Arab physicians used chemistry to advance pharmacology



- ◆ Arabs begin requiring physicians to pass examinations and obtain licenses

Middle Ages



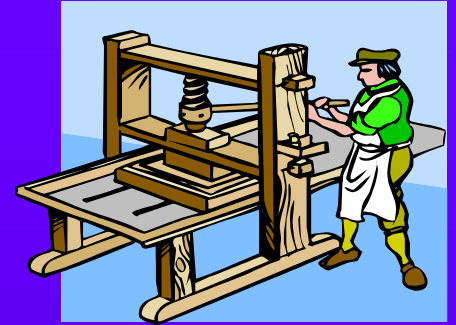
◆ Barber – Surgeon

- Cut hair, treat cataracts, practice blood-letting, treat injuries, amputate limbs, cauterized bleeds
- Striped pole – after operation, bandages, hung on staff/pole and placed outside as an advertisement
- Twirled by the wind, they would form red/white spiral patterns

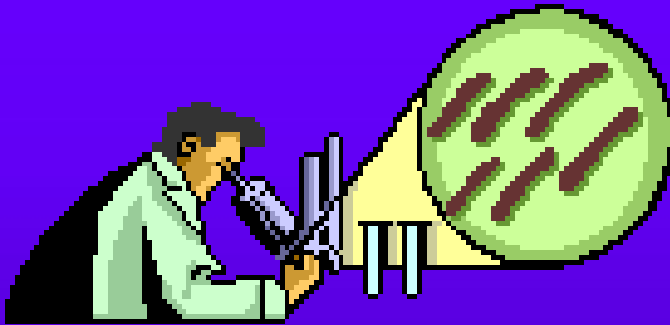


Renaissance (AD 1350–AD 1650)

- ◆ Dissection of the body led to an increased understanding of anatomy and physiology
- ◆ Invention of the printing press allowed medical knowledge to be shared.
- ◆ First anatomy book by Andreas Vesalius, was published



16th, 17th, and 18th Centuries



Anton van Leeuwenhoek



- ◆ Invention of the microscope in 1666 allowed doctors to see disease-causing organisms
- ◆ Apothecaries led to development of pharmacies

19th Century

- ◆ Formal training for nurses led by Florence Nightingale began
- ◆ Infection control methods were developed once microorganisms were associated with disease



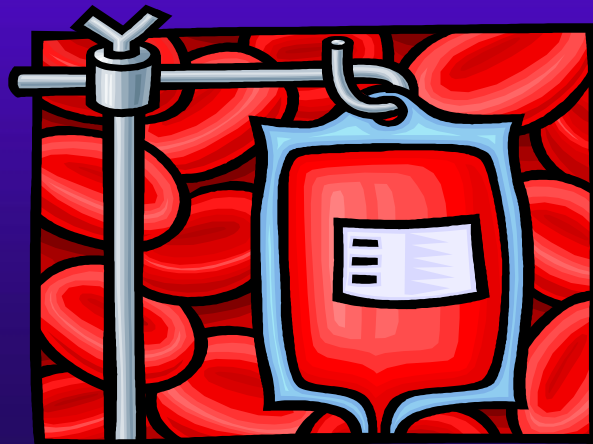


Modern Times

More changes have occurred than in all other periods of health care

20th Century

- ◆ Gained an increased knowledge about the role of blood in the body:
- ◆ ABO blood groups discovered
- ◆ Determined how white blood cells protect against disease



20th Century

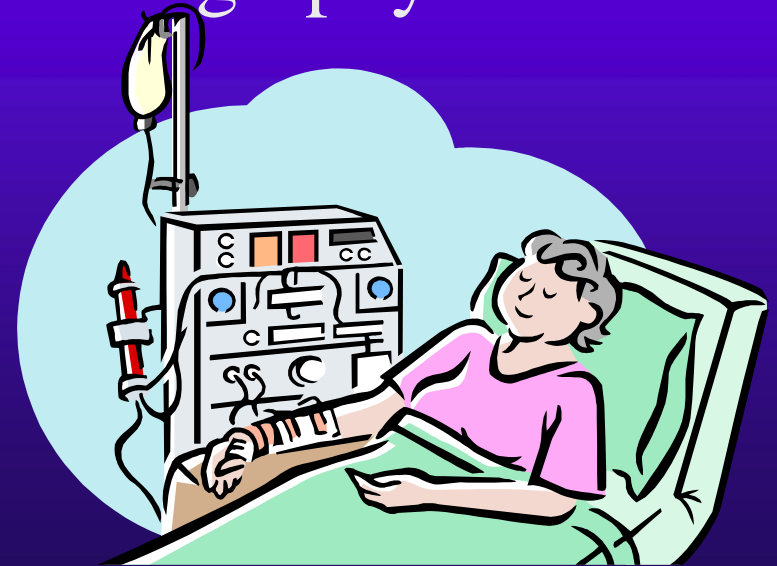


- ◆ New medicines were developed:
 - Insulin to treat diabetes
 - Antibiotics to fight infections caused by bacteria
 - Vaccines to prevent people from getting diseases caused by viruses



20th Century

- ◆ New machines were developed:
 - Kidney dialysis machine
 - Heart lung machine
 - Computerized axial tomography (CAT) scan



20th Century



- ◆ Surgical and diagnostic techniques were developed to cure once fatal conditions:
- ◆ Organ transplants
- ◆ Limbs reattached
- ◆ Test tube babies
- ◆ Amniocentesis
- ◆ Implanted first artificial heart

20th Century

- ◆ Health care plans developed to help pay the cost of health care
- ◆ Medicare and Medicaid marked the entry of the federal government into the health care arena
- ◆ HMO's provided an alternative to private insurance
- ◆ Hospice was organized



Caduceus

- Greek God of Healing – Asclepius
- His symbol was the snake
- Priest healers later adopted the symbol and has now become the symbol for physicians





Timeline- Middle Ages

- ◆ 400 B.C.- Hippocrates
- ◆ 200 A.D. – Claudius Galen



Timeline- Renaissance

- ◆ 1602- William Harvey- father of cardiovascular medicine
- ◆ 1665- 1700- Invention of reflective microscope and of identification microorganisms
- ◆ Andre Vesalius published textbook of anatomy



Timeline- Industrial Revolution

- ◆ 1796- Edward Jenner
- ◆ 1822-1895- Louis Pasteur
- ◆ 1827-1912- Joseph Lister
- ◆ 1843-1910- Robert Koch
- ◆ 1847-Ignaz Semmelweis



Timeline- Industrial Revolution

- ◆ 1854- John Snow
- ◆ 1854 – Florence Nightingale
- ◆ 1897- Marie Curie
- ◆ 1845-1923- Wilhelm Conrad Rontgen
- ◆ 1868- 1943- Karl Landsteiner
- ◆ 1882 – Clara Barton



Timeline- Modern World

- ◆ Banting & Best
- ◆ Alexander Fleming
- ◆ Jonas Salk
- ◆ Sir John Charnley
- ◆ Christian Barnard
- ◆ 1953- discovery of DNA by Watson & Crick

Trends in Health Care

- ◆ “Explosive” development of technology
 - Non-invasive diagnosis of soft tissue diseases/injuries
 - Ultrasound technology
 - Radiology
 - Cancer treatments
 - Mobile telephones
 - Cameras – scopes
 - Digital imaging
 - **VERY EXPENSIVE**






Technology

- ◆ Computers have become essential in almost every aspect of health care.
- ◆ Computers are processors of information.
 - Process large amounts of information at incredible speeds, accurately, and consistently.
 - Their processing speed is their major advantage over humans.
- ◆ All health care services have gained a greater ability to treat, diagnose, and care for patients thanks to computers.



Technology

- ◆ Whether you want to be a physician, nurse, lab technician, nurse's aide, radiology technician, dietician, pharmacist, physical therapist, or any other type of health care professional, you must have a working knowledge of computers.



Four Areas Computers Are Used

1. Hospital Information Systems (HIS) or Medical Information Systems (MIS)
 - ✱ Managing budgets, inventories, lab reports, ordering, personnel scheduling, and general records.
 - ✱ Maintain and retrieve vital patient information including demographics, insurance, etc.
 - ✱ Patient medical records.
 - ✱ Drug interaction alerts.
 - ✱ Patient scheduling.
 - ✱ Clinical Pathways/Care Maps – standardization of care



Four Areas Computers Are Used

2. Diagnostic Testing

- ✿ Computerized Tomography (CT Scan), Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET), Stress Testing, Electrocardiograph, and Ultrasonography.
- ✿ Development of these types of computer applications have contributed to more accurate and less invasive methods of diagnosis and treatment.



Four Areas Computers Are Used

3. Educational Tools

- ✿ Computer-assisted Instruction, Interactive Video.
- ✿ Research has shown that computer-based learning decreases time on the task, and increases achievement and retention of knowledge.

4. Basic & Applied Research

- ✿ Statistical analysis of data.
- ✿ Internet, databases.
- ✿ Computer controlled research testing.



History of the Computer

- ◆ First computers were installed in hospitals in the late 1950's and early 1960's.
 - They often overheated and became inoperable for many hours.
- ◆ 1970's - Invention of the silicon chip.
 - Computers are now much smaller, more powerful, and less expensive.



Computers

- ◆ Whenever humans depend on machines, contingency plans need to be made just in case the machine stops functioning.
- ◆ Computer downtime may be scheduled or unexpected.
- ◆ Medical facilities must have manual methods available to accomplish all of the tasks a computer does.
 - Examples: patient admissions, bed assignments, medical records, ordering, scheduling, etc.



Computers

◆ They can make our jobs simpler. Examples:

- Data analysis
- Presentation of information
- Internet
- Databases
- Appointment scheduling (coordinate multiple appts, auto reminders)
- Patient monitoring
- Medical claims
- Paperless records (pharmacy, lab results, radiology)
- Information at our fingertips (electronic medical records)
- Email systems
- Off site/telemedicine
- Payroll, employee info
- Communication
- Create documents (word processing, spreadsheets)



Ethics and Confidentiality

- ◆ The health care worker must remember the importance of ethics and confidentiality when using a computer.
- ◆ Computers contain privileged information that must be protected.
- ◆ Keep your identifications codes and passwords confidential to protect you and the patient.



Communication

◆ Email (Electronic Mail)

- A means of creating and sending messages from one computer to another using a system of networks.
- Now a standard professional communication tool.
- Can attach documents and files.
- It is essential that email messages be clear and accurate.
- Keep messages brief and to the point.
- No personal email correspondence - employers have the right to read and monitor any messages sent through their computers.



Fax Machines

- ◆ Actually invented in 1843, Alexander Bain.
- ◆ Connects to a normal phone line and allows you to transmit pieces of paper to someone else instantly.
- ◆ Image sensors look for black or white in a single line of the document, translates those into “bits” which travel through the phone line and arrive at a receiving fax machine. Bits are decoded and reassembled into the scanned lines of the original document.



Telemedicine

- ◆ Medicine is practiced over telephone lines.
- ◆ Images, such as x-rays can be transmitted.
- ◆ Benefits:
 - Allows patient access to specialists located far away.
 - Communicate vital signs from home to a facility.
 - Perform physical exams from a distance.
 - Link physicians to emergency medical workers in the field.
- ◆ Problem: Most state licensing laws do not allow physicians to give medical advice via telephone to patients in other states.
 - Technology is advancing more quickly than society.



Virtual Communities

- ◆ Individuals who use the Internet to communicate and share information.
- ◆ Discussion groups and methods for exchanging information can be very valuable.
- ◆ Health care workers and patients can share information and experiences about specific health conditions.
- ◆ Examples:
 - Chat rooms – correspond in real time.
 - Listserves – receiving a newsletter/info on specific topics.



Internet

- ◆ Began as a method for government authorities to communicate in case of a nuclear attack.
- ◆ Has rapidly grown to become a principal means of communicating, conducting business, shopping, learning, and securing needed information.
- ◆ Medical uses for the Internet:
 - Organ transplant databases.
 - Research and information.
 - Patient education.



Computers

- ◆ Computers are an essential part of health care and also a necessity.
- ◆ All health care services have gained a greater ability to treat, diagnose, and care for patients through computerization.
- ◆ Every health care worker should have basic computer literacy.



Trends in Health Care

- ◆ Preventive Medicine – Wellness
 - Link between diet, exercise, & good health
 - Health care wellness centers for patients with chronic diseases (arthritis, diabetes, osteoporosis, etc.)
 - Complimentary therapy, Holistic medicine
 - Disease screenings
 - Helps control costs, encourage positive choices

Trends in Health Care

◆ Aging Population

- By 2005, one of every two adults will be 45 years or older
- Baby Boom (1946 – 1964)
- The elderly require more health services





Trends in Health Care

◆ Underinsured & Uninsured

- 16% (42 million) of US population do not have health insurance
- Many citizens have health insurance but the coverage is limited or the co-payments or deductibles are very high
- 74% of the uninsured are in families with at least 1 full-time worker
- Among low-wage workers (<\$7/hr), 45% are not even offered medical benefits



Trends in Health Care

- ◆ Underinsured & Uninsured, cont.
 - County hospitals, tax-supported hospitals
 - Cost absorption
 - Lack of care
 - Underinsured – small companies have greater overhead costs for providing insurance and generally only offer a “one-size-fits-all” medical plan to employees



Trends in Health Care

◆ Ambulatory/Outpatient Surgery

- Many procedures, from diagnosis to treatment can now be done without overnight hospitalization
- Technology, research, new medications
- Influenced by limits on insurance reimbursements (DRG's)
- Overall cost of procedures is reduced



Trends in Health Care

- ◆ Diagnostic Related Groups DRG's)
 - Groups of procedures or tests related to a specific diagnosis
 - Now a flat fee is paid based upon the diagnosis regardless of how long the patient stays or the services provided





Trends in Health Care

◆ Home Health Care

- Common during late 1980's
- Nurse or other skilled professional visits the home to assess patient's condition and provide treatments and education
- Families and patients have to learn how to self-administer treatments or perform procedures done in the hospital in the past
- Health care workers evolved to become teachers and coaches



Trends in Health Care

◆ Home Health Care, cont.

– Benefits:

- Exposed to fewer pathogens and germs
- Reduced stress/anxiety in familiar surroundings
- Lesser skilled workers can assist with personal activities leaving skilled workers to provide assessment, treatment & education – decreases costs

