HISTORY

RADIOLOGY TECHNOLOGY
[ X-RAY | MRI | COMPUTER TOMOGRAPHY (CT) ]

1895: X-RAY | WILHELM RONTGEN
1970: MRI | RAYMOND DAMADIAN
1975: CT SCAN MACHINE | GODFREY HOUNSFIELD
ORIGIN OF VACCINES

1796: SMALLPOX VACCINE | EDWARD JENNER
INOCULATION THROUGH SKIN CONTACT
SMALL EXPOSURE TO SMALLPOX GERMS
ANTIBODIES CREATED TO BEAT INFECTED CELLS
ORIGIN OF MODERN MEDICINE

1926: PENICILLIN DISCOVERED | ALEXANDER FLEMING
STAPHYLOCOCCUS MOLD KILLED BACTERIA CULTURE

CONTRIBUTED TOO:
LOUIS PASTEUR, FLORENCE NIGHTINGALE
HISTORY

LOUIS PASTEUR

CHEMIST, MICROBIOLOGIST FROM FRANCE

BACTERIA CAUSES MILK/WINE TO SPOIL

BACTERIA CAN BE REMOVED THROUGH PASTEURIZATION

PATHOGENS ATTACK THE BODY FROM OUTSIDE

BACTERIA ORIGINATES FROM THE ENVIRONMENT

DISEASES PREVENTED THROUGH VACCINES?
NURSE FROM GREAT BRITAIN
WORKED IN MILITARY HOSPITALS IN TURKEY
UNSANITARY CONDITIONS CAUSED HIGHER MORTALITY RATE
STRESSED IMPORTANCE OF GOOD SANITATION
DEATH RATE REDUCED 42% TO 2%
ADVOCATE FOR MORE FEMALE NURSES
Top Issues In Medicine Today

- VIRUS IMMUNITY
- CURING CANCER
- PRESCRIPTION DRUGS
- INEFFECTIVE MENTAL ILLNESS TREATMENTS
Viruses

[ FLU | POX | COMMON COLD ]

- Vaccines (common solution)
- Antibodies kill sick cells, some remain
- Cells mutate DNA to become resistant
- Viruses become stronger and deadlier
Cancer

[ LEUKEMIA | BREAST | LYMPHOMA ]

CHEMOTHERAPY (COMMON SOLUTION)

BODY CELLS AND CANCER CELLS DIE

CANCER COULD COME BACK AFTER TREATMENT?
Bad Medications

- PAINKILLERS
- OTC
- PRESCRIPTION DRUGS

HARM MORE THAN HELP THE BODY

- DAMAGE LIVER, INTESTINES
- ADDICTIVE AND ABUSED
- 30% COUNTERFEIT
Mental Illnesses

[ SCHIZOPHRENIA | DEPRESSION | ALZHEIMER’S ]

- Limited options for treatment
- Sometimes treatment ineffective
- Medications can be harmful to body
- Cases on the rise
The question is:

How can we use computers to solve these issues?
Viruses

[ QUICKER DEVELOPED VACCINES ]

Synthetic Attenuated Virus Engineering (SAVE)
- Computer generated codon pairing in genome

- Fast, easy, and cost efficient
- Can quickly address an emerging virus
- Substantial genetic data needed
Cancer

[ PROTEIN RESEARCH TO REPLACE CHEMO ]

IBM Computer aiding cancer research

- Tumor suppressor (protein\textsuperscript{53}) = \( \frac{1}{2} \) cancer cases
- Analysis of proteins that control p53
- Researchers found 28 proteins | 30 years
- Computers found 6 proteins | 1 month
Prescription/OTC Drugs

[AWARENESS | LIMITED USAGE | SMALLER DOSAGES]

NCAPDA
- Raises awareness about prescription drug abuse

ENCOURAGE LESS OR NO USE
- Body builds tolerance to pain
- Your liver appreciates it
Mental Illnesses

[ NEW FORMS OF TREATMENT | MILDERS DRUGS ]

MUSIC THERAPY
- Music can alter brain waves
- Induces calm, concentrated state of mind
- Beneficial to nearly all mental illnesses

MILDERS DRUGS
- Less side effects
- Should be combined with additional therapy
Future Outlook

Computers will play a role in:
- Researching solutions for cancer and diseases
- Developing new antibiotics to solve viruses
- Spreading awareness about drug abuse
- Therapy

Most solutions are being implemented today!
Computers are important in medical field!
END OF PRESENTATION

QUESTIONS?