



THE ART OF MEDICINE

PAST, PRESENT AND FUTURE

Dr H. BOODHOO

F.C.S

Consultant Neurosurgeon

A microscopic view of several red blood cells, showing their characteristic biconcave disc shape and reddish color. The cells are clustered together, with some in sharp focus and others blurred in the background.

FUTURE DEVELOPMENTS IN MEDICINE

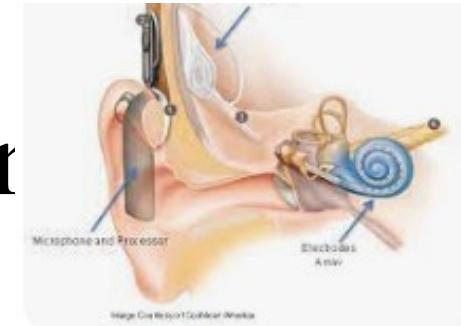
- Nanotechnology/Nanomedicine
- Drug delivery
- **Imaging**
- Sensing (Nanosensor)
- **Sepsis treatment (purification with Nano particles)**
- Tissue engineering (reshape and repair damaged tissue)
- **Medical devices**
- Cell repair machines

BIONICS

- Occular implant



- Cochlear implant



- Neural implant



VACCINE

S

- HIV



- Malaria



- Some types of cancers



MENTAL ILLNESSES THE NEW PANDEMIC

- By **2030**, depression and mental illness are expected to overtake heart diseases to become the greatest health concern worldwide
- By **2050**, 20 % of the world population will suffer from cognitive disorders (dementia, Alzheimers, Parkinson)
- **LOST YEARS**- depression will remain a leading cause of lost years (i.e, years lived in a state of poor health)

Gene editing and Bioprinting

- **Human genomic project 2003**
- Jenifer Doudna and Emmanuelle Charpentier
- **Cas 9 protein (CRISPR associated protein)**
- **Genomic editing (drag and drop)**
- Gene therapies are anticipated to become commercially available that will be able to restore sight, hearing loss, cure Alzheimers, Parkinson, Paralysis and other degenerative diseases

- From wearables to internals (embedded electronics(aka Internals))
- Artificial Intelligence AI
- Treatment of cancer





Medical education 2020-2050

- Education in the year 2050
- Evolution of medical education in the 21st century and the challenges ahead
- Voluminous new information
- Substantial revisions would be inevitable
- Irrelevant medical curriculum
- Clinician will be trained to work in a highly specialised

COMMON CORE MEDICAL CURRICULUM

DIFFERENT PATHWAYS/TRACKS

Early hands on experience in a patient specialist programme

Focus will not only be diagnosis or treatment but fundamentally quality of life

Early commitment to medical speciality at their best learning age

TIME (Transformation In Medical Education)
–University of Texas

- 24/135 medical schools----- shortcut
- HARVARD- New pathway(15 months of clinical rotation)



Shortening medical education would affect physician competency as it requires a certain period of time to establish solid grounding and maturity of judgement in the field of medicine



The quality of medical care has tremendously improved since the integration of speciality in medical education in the curriculum



Huge influx of new information

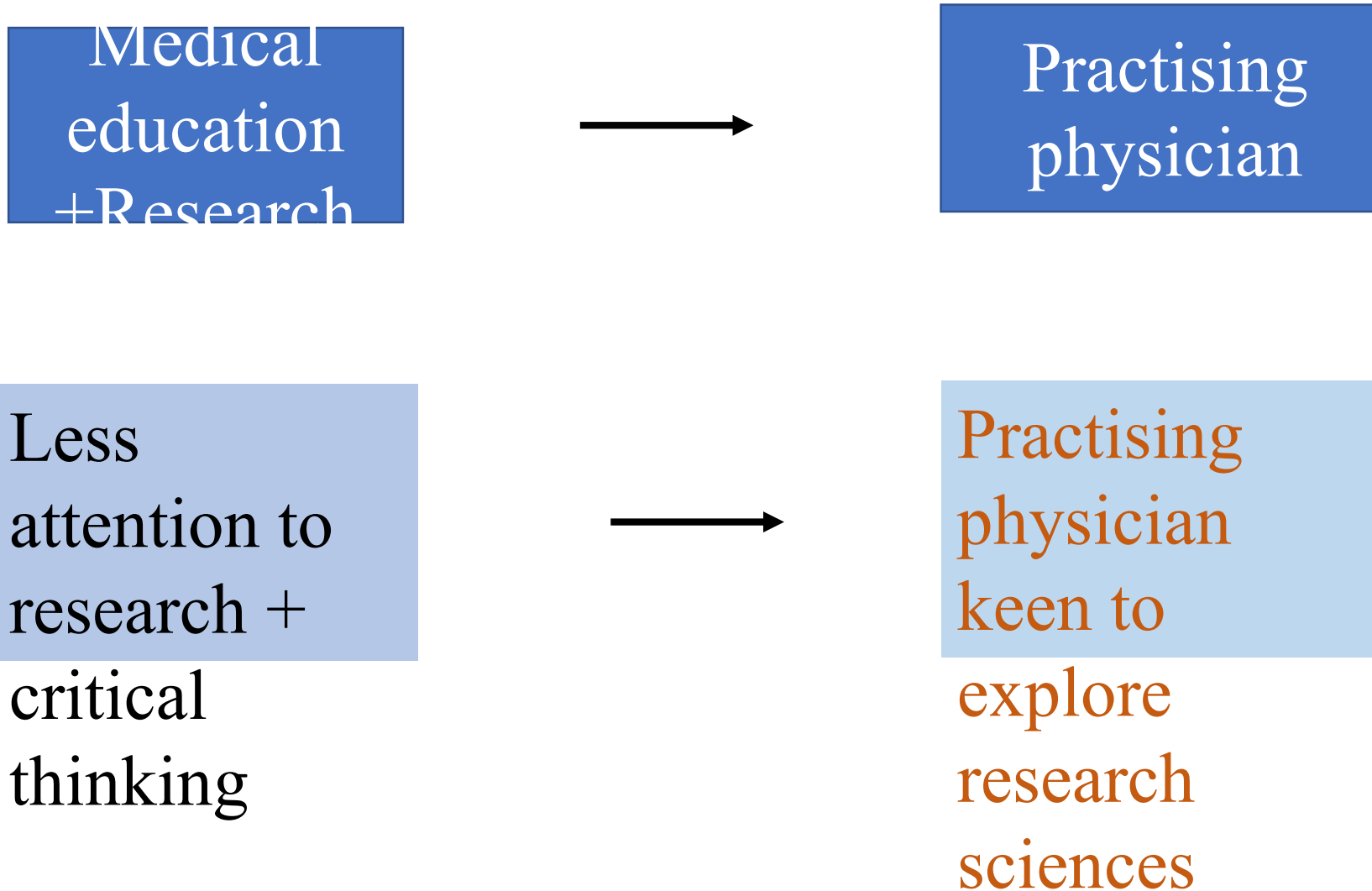


EBM (evidence based medicine) was considered the best medical practice



Even the most cutting edge medical specialist could not keep pace with rapid growth of database

2020-2030-Double standards medical education



2030

The noble profession is widely affected by law suits and legal restraints in respect to patient's rights

IDIOT

(Internal derived information obstructing treatment)

IAI (Internet acquired information)

Patient specialist





The era of 2030-2050

- CME to CPD

- Management

- Social

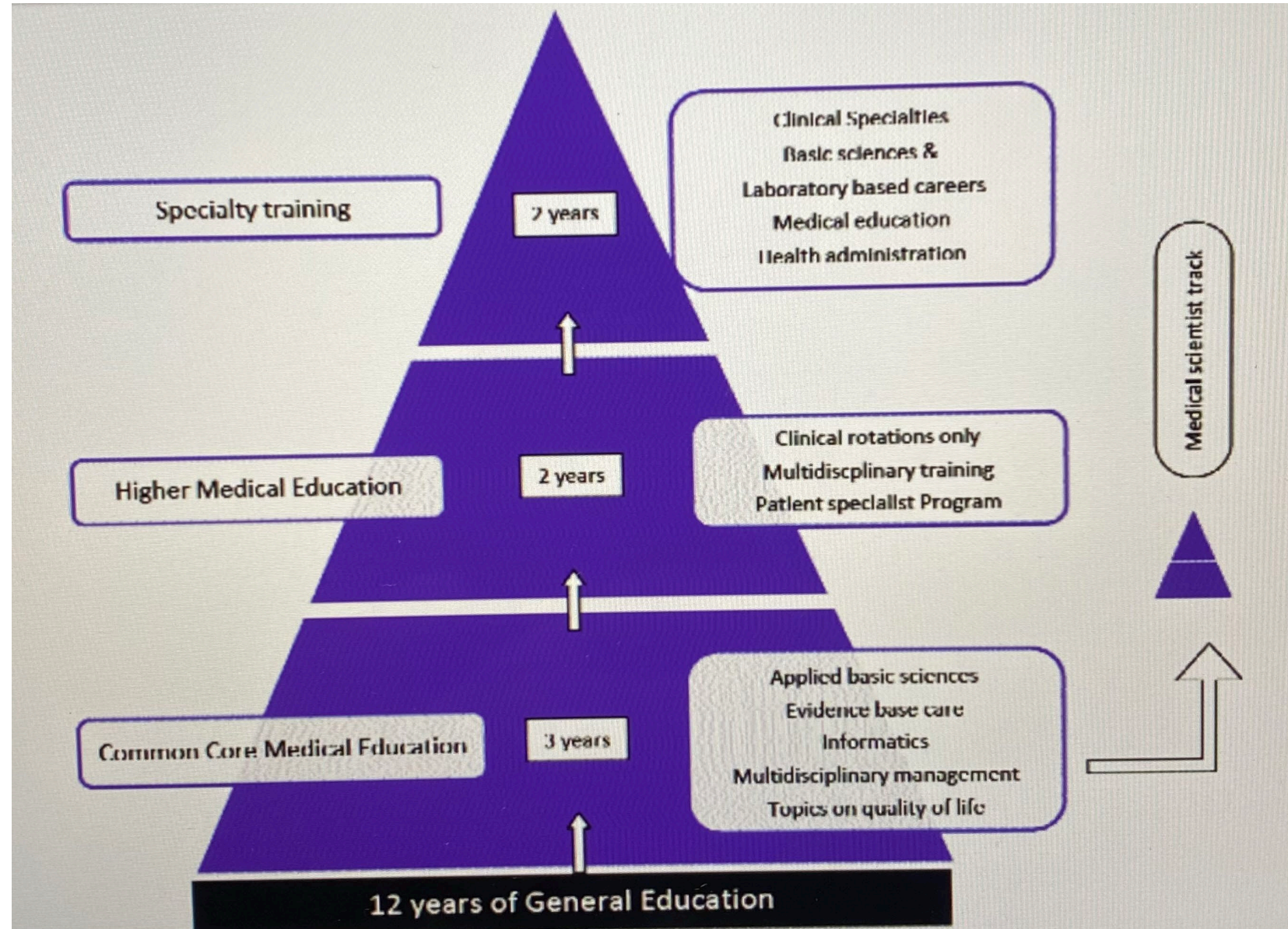
- Personal skills

- The era of Revolution
- Redefinition of outcome of patient's care
- Successful reintegration of patient back in the society
- Accreditation of hospital
 - Vocational and rehabilitation facilities must be standard requirements
 - Contribution of allied health and care worker will be considered at par with the physician in the management of patients



A hypothesis that the personalisation and technologisation of health care will become key trends in the development of health care in the short , medium and long term period

Modern day Medical education (2050)



YES

There is a short cut in
medicine

BUT

*“Skill in time saves
nine”*



Technology will never replace the human touch. Technology may facilitate care but it cannot replace the heart of medical practice.

**~~The doctor-patient relationship~~
*Our patient wants our care, our reassurance, our compassion and this cannot be given by machines***

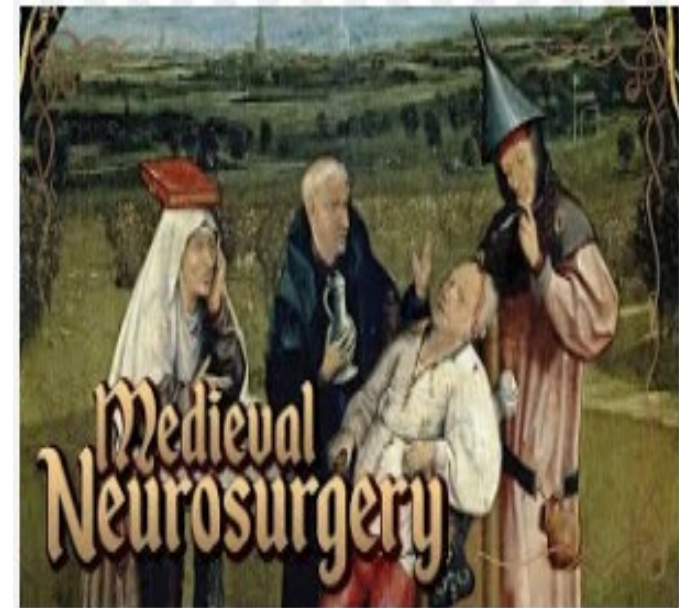


Neurosurgery

- Nanotechnology/Nanorobots
- AI
- CINE/MRI
- New Genetic Personalised drugs

Our understanding of basic pathophysiology of head injury is still in its infancy.


Head injury has been the greatest challenge for Neurosurgeons from prehistoric time till now



2050

HOW and WHO Is going to treat us?





Wherever the art of Medicine is
loved, there is also a love of
Humanity.
- Hippocrates

Thank you