



Physician in the Digital Era

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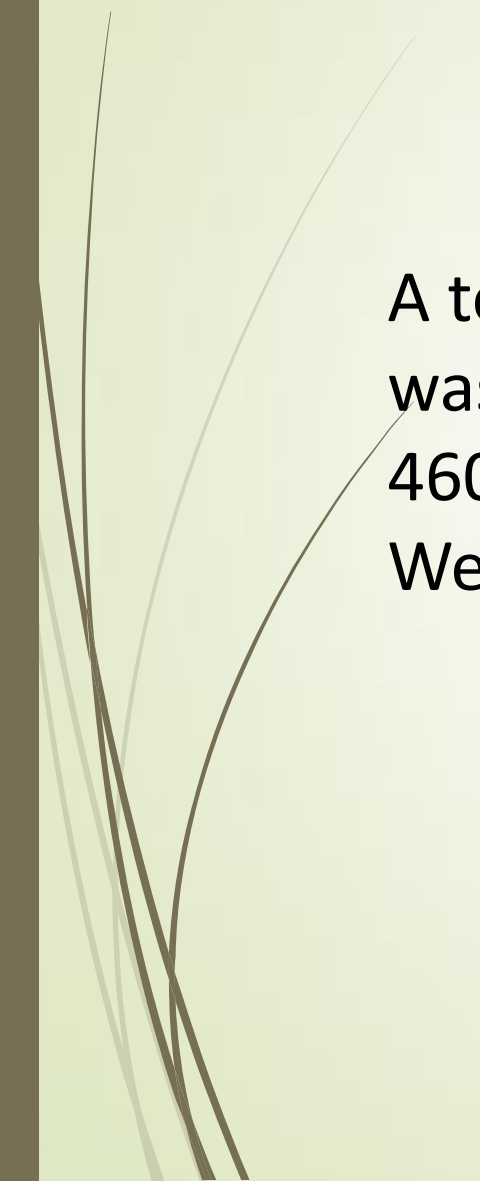



EVOLUTION of MEDICAL SCIENCE

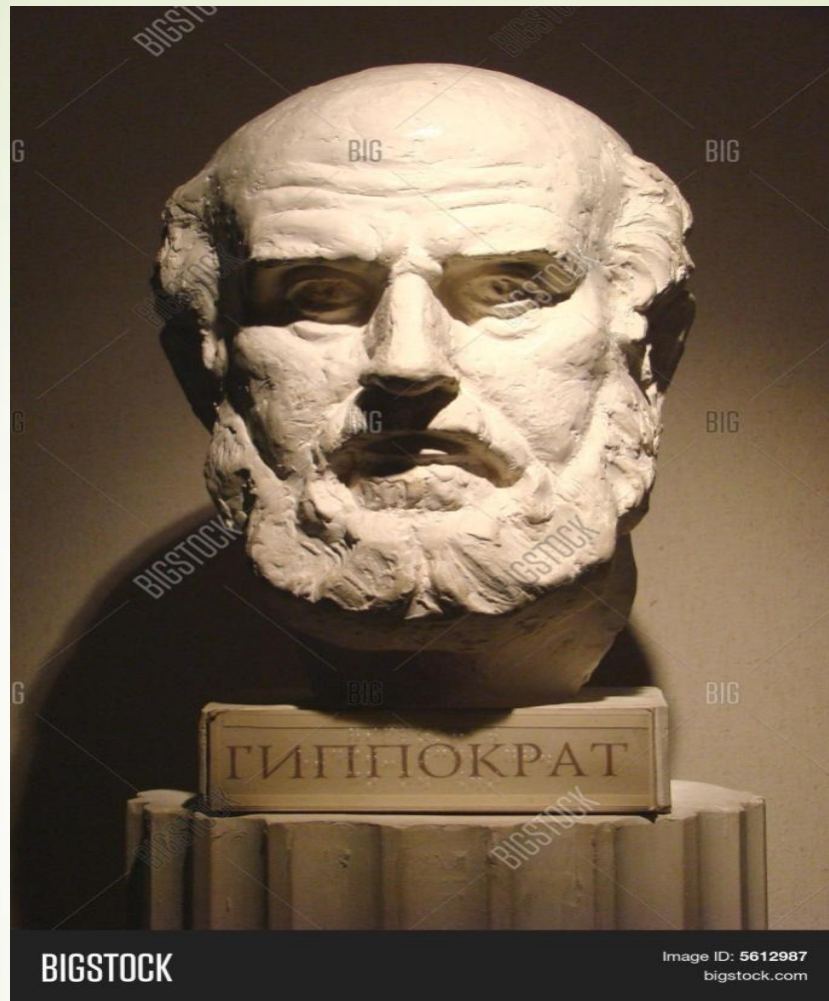


Early medical traditions include those of
Babylon, China, Egypt an India.

The **Greeks** introduced the concepts of
medical diagnosis, prognosis, and advanced
medical ethics.

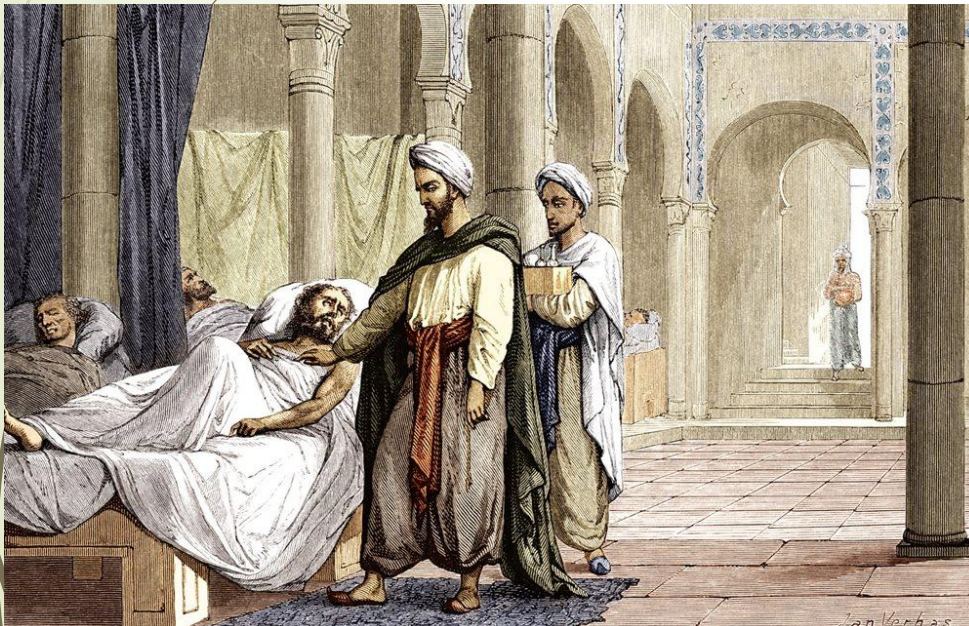


A towering figure in the history of medicine was the physician Hippocrates of Kos (c. 460 – c. 370 BCE), considered the "father of Western medicine."



Hippocrates

The **Islamic civilization** rose to primacy in medical science as its physicians contributed significantly to the field of medicine.



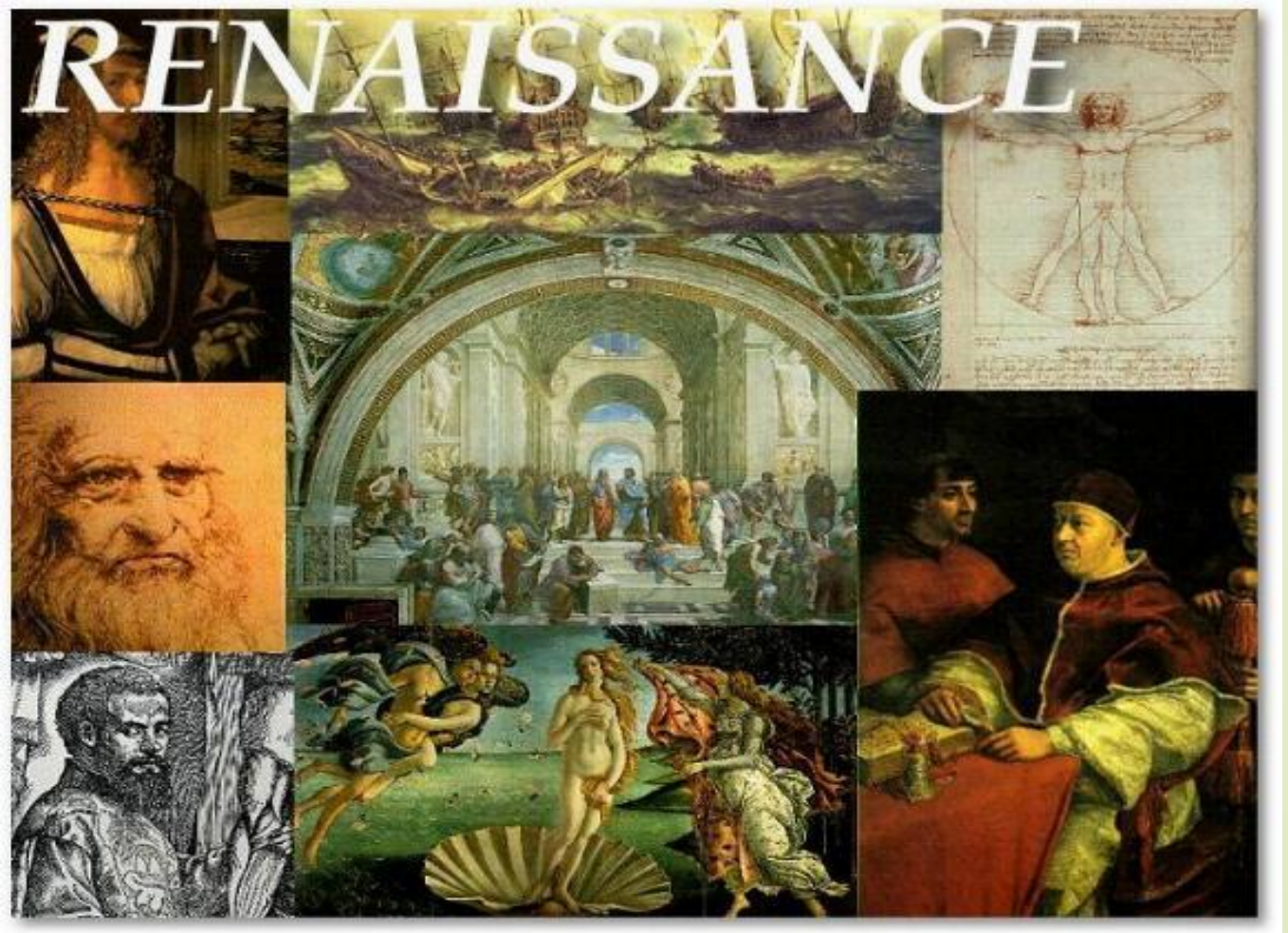
A Latin copy of Ibn Sina's The Canon of Medicine, published in 1484



Medical School and Universities

- The first **medical schools** - in the **9th century**, most notably the Schola Medica Salernitana in Italy.
- By the **13th century**, the medical school at Montpellier began to eclipse the Salernitan school.
- In the **12th century**, **universities** were founded in Italy, France, and England.

Renaissance to Early Modern period 16th–18th century.






The Renaissance brought an intense focus on scholarship to Christian Europe.

- The **microscope** was invented
- The **germ theory** of disease in the 19th century led to cures for many infectious diseases



Age of Enlightenment

- During the 18th-century, physicians upgraded their knowledge by becoming more scientific.
 - Advanced **research centers** opened in the early 20th century.
- 

The mid-20th century was characterized by development of

- Antibiotics.
- Genetics
- Lab technology

These advancements has led to modern medicine.





REVOLUTION In MEDICAL SCIENCE

What does *Digital Revolution* mean?

The Digital Revolution refers to the advancement of technology from analog electronic and mechanical devices to the digital technology available today.

- The era started to during the 1980s and is ongoing.
- Until today modern devices are coming up at Ultra, Micro and Nano technologies level.



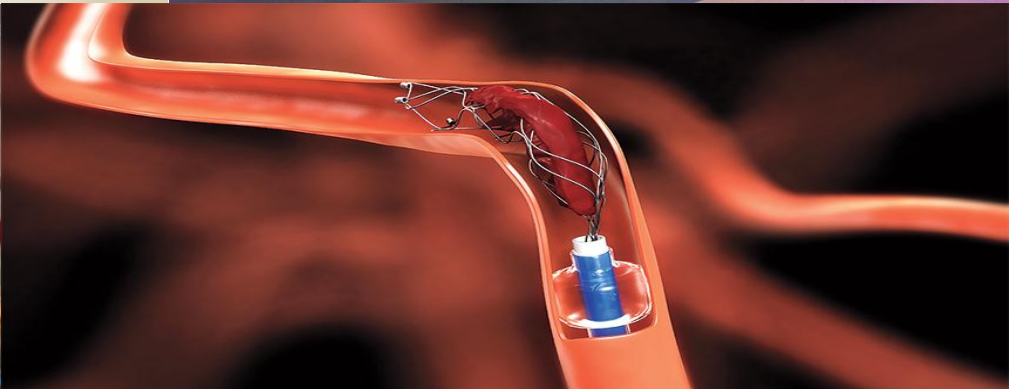
Advancement has occurred in

- Disease identification
- Drug development
- Newer diagnostic tools and machineries




Revolutionary change is ongoing in every sector due to technological advancement:

- Medical Study
- Diagnosis
- Treatment
- Disease Monitoring
- Communication between doctor and patient
- Research





PHYSICIANS



Definition of Physician

a person **skilled** in the art of healing; *specifically* :one **educated**, clinically **experienced**, and **licensed** to practice medicine as usually distinguished from surgery.

WHO IS NOT A SURGEON IS A PHYSICIAN

Physician in the Digital Era (PDE)



Physicians of 21st century

Modern Doctor

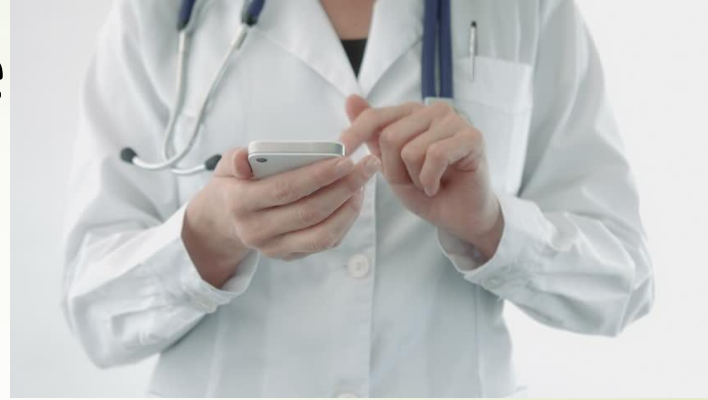
Internet based doctor





How are they?

- Smart with Smartphone
- Equipped with newer technology



Greet the patient



Attentive to patient



- Dietary advice
- Information about ailment
- Partnership in decision making



- Good history taking capacity
- Explain the problem accurately to patient





- Maintains Privacy
- Clarification of drugs used





Confidentiality



Referral if needed

- 
- 
- The physician would rely on what they found by direct bed side practice of methods.
 - Diagnosis made after specific investigations based on clinical finding.



- 
- 
- Sympathy and Empathy used to be the base of doctor-patient relationship.
 - The teamwork made diagnosis possible with minimum cost, building up confidence and reliability.

hugs sorrow love prayers support compassion
sharing feelings sorry here for you feeling help thoughts
time of need sharing empathy support loss together empathy

SYMPATHY

share love caring sorrow hug
support concern feeling prayers concern sorry family
loss

 SEE
THEIR WORLD

 APPRECIATE THEM
AS HUMAN BEINGS

~~JUDGEMENT~~

4 ELEMENTS OF EMPATHY

  
UNDERSTAND
FEELINGS

 COMMUNICATE
UNDERSTANDING



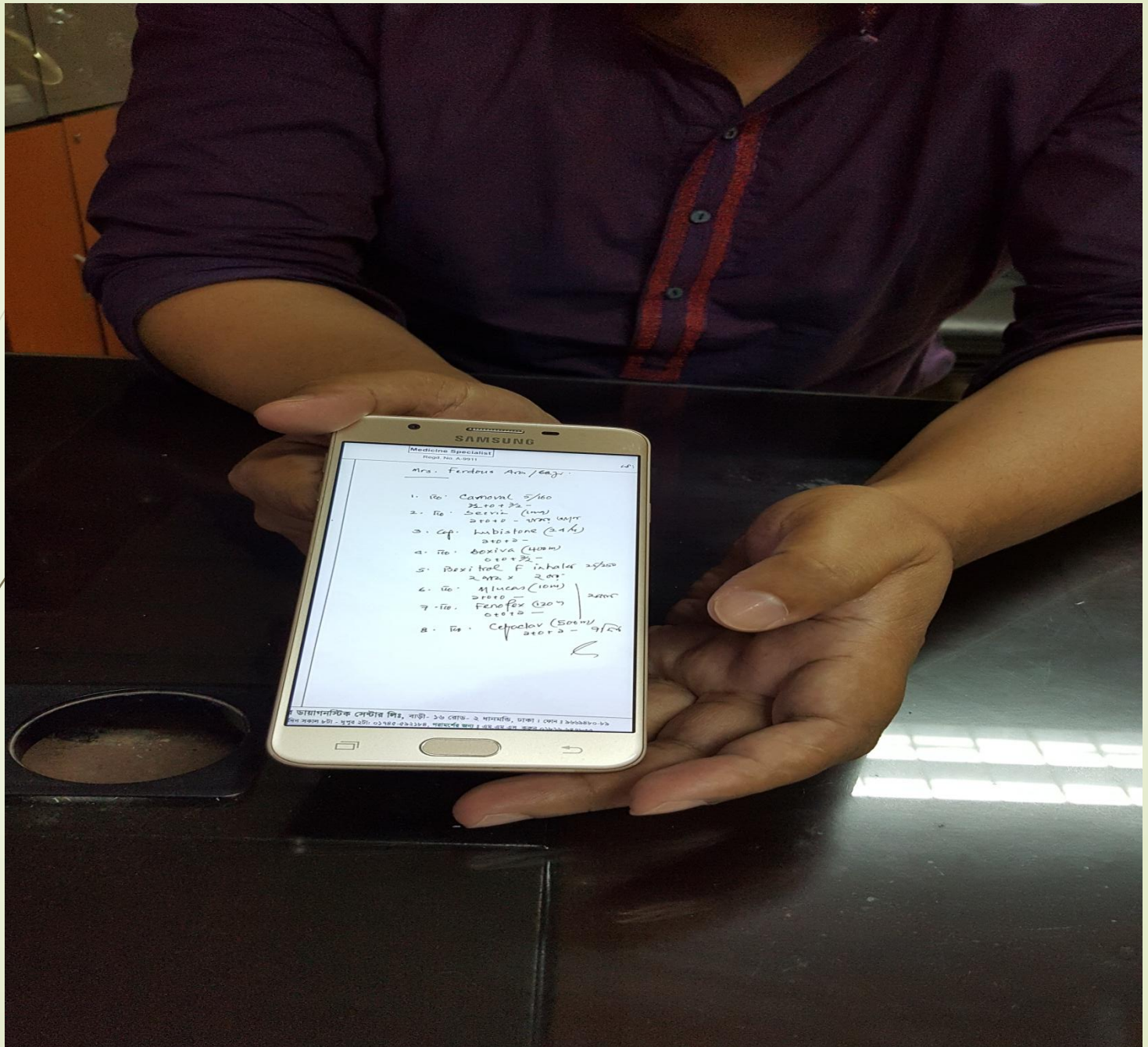
Patient Expectation from PDE

1. Doctors should be **reachable at all times**.
2. Patient **care** should be **personalized**.
3. Patients should know **what's going on** at all times
4. Doctors should offer **care coordination**.
5. Patients **shouldn't wait** to access care.
6. They **demand time** to verify their gathered information as they visit physicians.

Patient Expectations have changed...



**Make Me
Feel
important !**



SAMSUNG

[Medicine Specialist]
Regd. No. A-3911

Mrs. Ferdous Ara/eag.

1. No. Camomil 5/100
35.10.13.2
2. No. Serevit (mg)
20.10 - 10mg wpr
3. Cf. habitone (445)
20.10 -
4. No. boxiva (400mg)
0.10.13 -
5. Dexi tac F Inhaler 25/100
2.10.13 x 2.01
6. No. Alucan (10mg)
20.10 - 20mg
7. No. Ferefox (207)
0.10.13 -
8. No. Cepoclov (500mg)
20.10 - 9/13

ডাঃ ফারদাউস আরা মেডিক্যাল সিস্টেম, বাড়ি: ১০ রোড- ২, মানসিংহ, ঢাকা। ফোন: ১০০০০০০-১৩
ফোন: ১০০০০০০-১৩, ১০০০০০০-১৩, ১০০০০০০-১৩, ১০০০০০০-১৩, ১০০০০০০-১৩

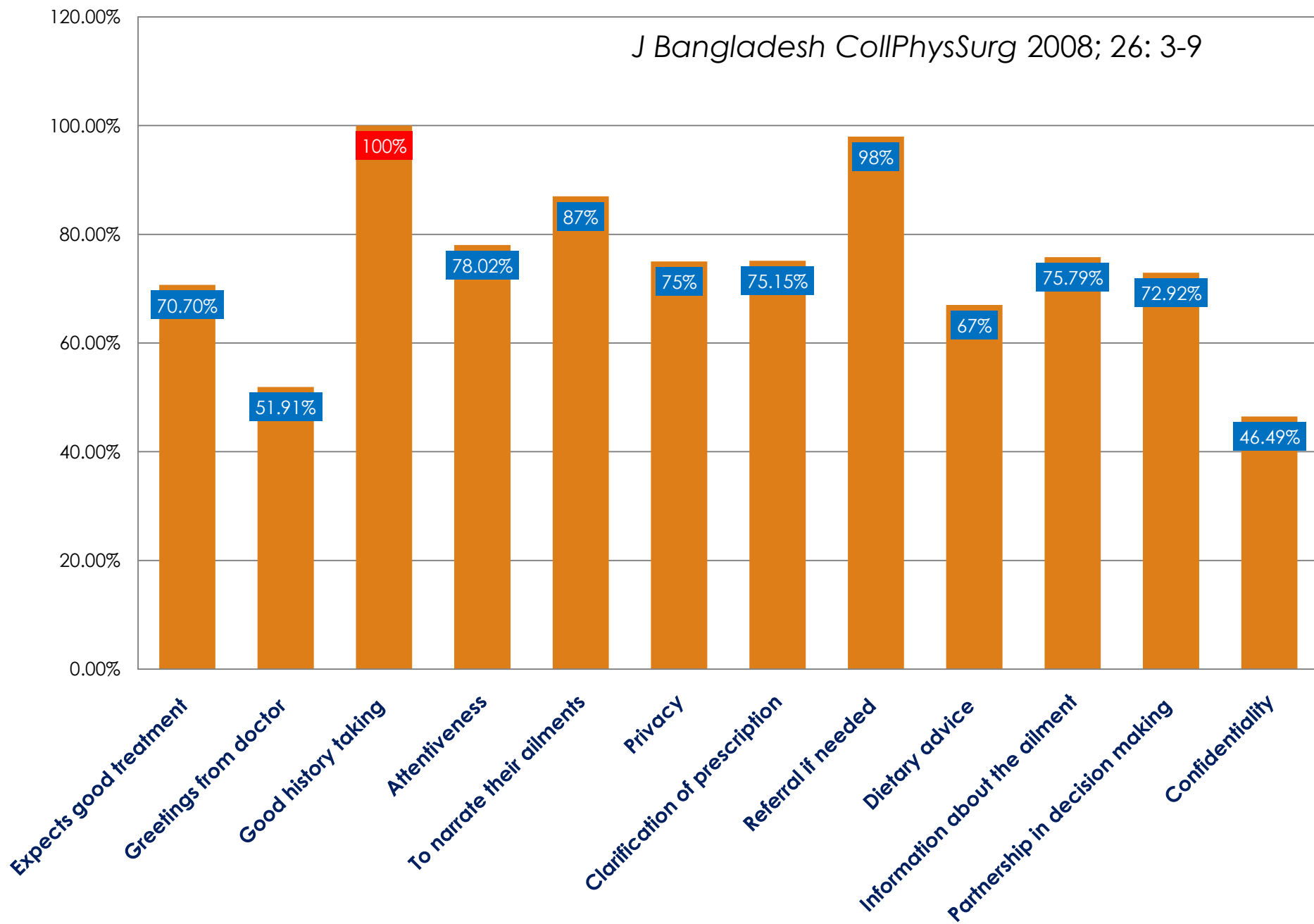


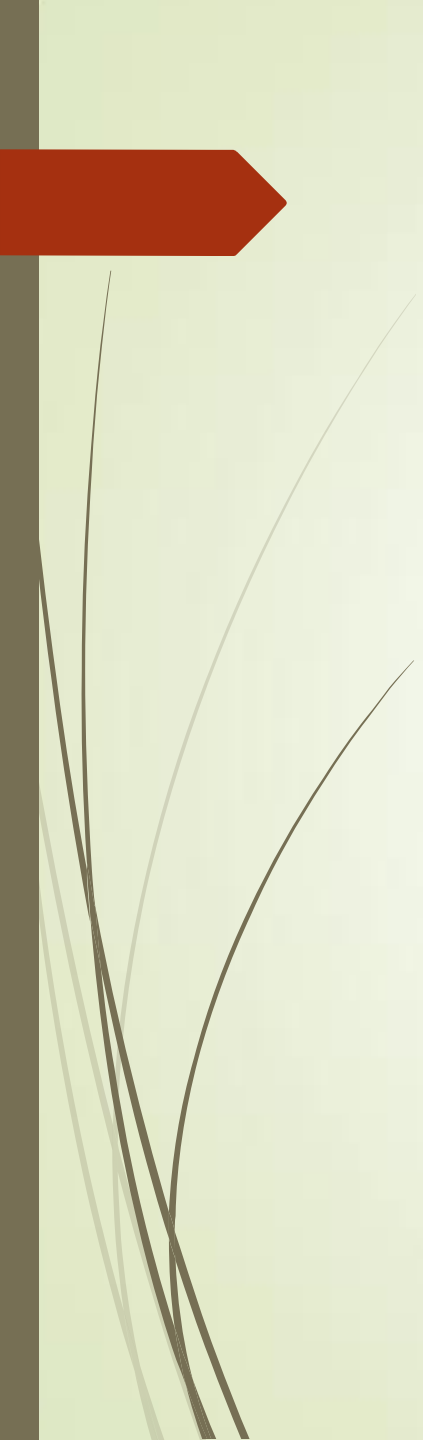
Apart from this, patients gather knowledge about their disease, symptom, drug and tend to discuss with the physician for more clarification and possible explanation of everything- **“The Wikipedia Syndrome”**



Study showing patient's expectations from physician

J Bangladesh CollPhysSurg 2008; 26: 3-9





**Current situation where major
change is notable in daily
activities of a doctor in different
situations.**

It's a common picture in ward round



There is always someone

- Holding smartphone or tabloid.
- Having camera and picking academic picture



The trend of using a notebook, pencil/ pen is almost over.



Doctors use smartphones more than they use stethoscopes.

- Both for patient care; and for socializing
- Access the Internet to remain up to date

Using Medical apps





Teachers have to take a look at the book stored in his device before taking the class




















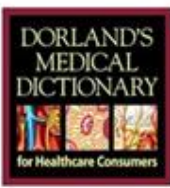






Keep up to date

- Specialty-specific clinical content
- Online medical journals
Medscape, PubMed etc.
- CME articles



Medical apps - Reference tools act as a peripheral brain

Apps

 <p>Diseases Dictionary Atomic Infoapps ★★★★★ FREE</p>	 <p>Drugs Dictionary Of Atomic Infoapps ★★★★★ FREE</p>	 <p>Medical Terminology Medical Group Soft ★★★★★ FREE</p>	 <p>Explain Medicine Medical Joyworks ★★★★★ FREE</p>	 <p>Medical Dictionary MobMedics ★★★★★ FREE</p>	 <p>Medical Handbook Itssoftgroup ★★★★★ FREE</p>	 <p>Oxford Medical Dict MobiSystems ★★★★★ FREE</p>	 <p>Medical Calculators Pediatric Oncall ★★★★★ FREE</p>
 <p>Medscape WebMD, LLC ★★★★★ FREE</p>	 <p>Medical & Surgical Procedures Kmcpsesh ★★★★★ FREE</p>	 <p>Medical Formulas Sanapps Dev ★★★★★ FREE</p>	 <p>1mg - Health App for 1mg / HealthKartPlus ★★★★★ FREE</p>	 <p>Medical Abbreviations LegacySoftware ★★★★★ FREE</p>	 <p>MEDICAL Drug Dictionary Van Solutions ★★★★★ FREE</p>	 <p>Medical Mnemonics Oyeboade Ibrahim ★★★★★ FREE</p>	 <p>Find my Medicine Makeitapp ★★★★★ FREE</p>
 <p>Emergency Medicine com.itssoftgroup.medicine ★★★★★ FREE</p>	 <p>Dorland's Medical Dictionary MobiSystems ★★★★★ FREE</p>	 <p>Medical Tools Irtza Sharif ★★★★★ FREE</p>	 <p>Medical & Medicine Scope8 ★★★★★ FREE</p>	 <p>Medical & Medicine Scope8 ★★★★★ FREE</p>	 <p>Offline Medical Wik Kmcpsesh apps ★★★★★ FREE</p>	 <p>Ayurveda Medicine Gopalakrishna Joisa ★★★★★ FREE</p>	 <p>General Medicine VSL Group ★★★★★ FREE</p>

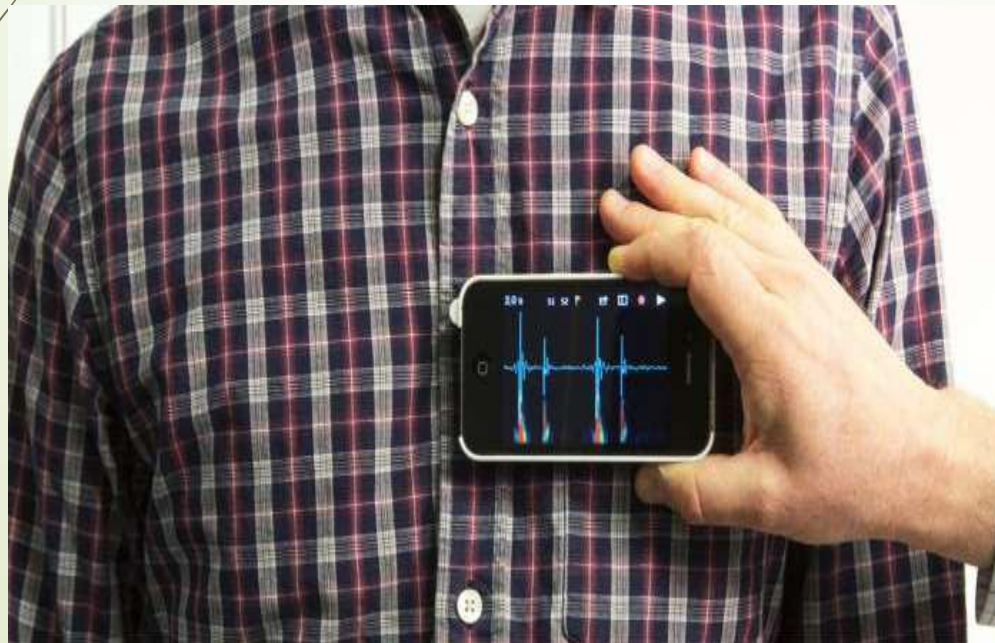


Iconic Equipment Stethoscope Previous and Now



NOW !!

Smartphone Stethoscope



As Ophthalmoscope



As Thermometer

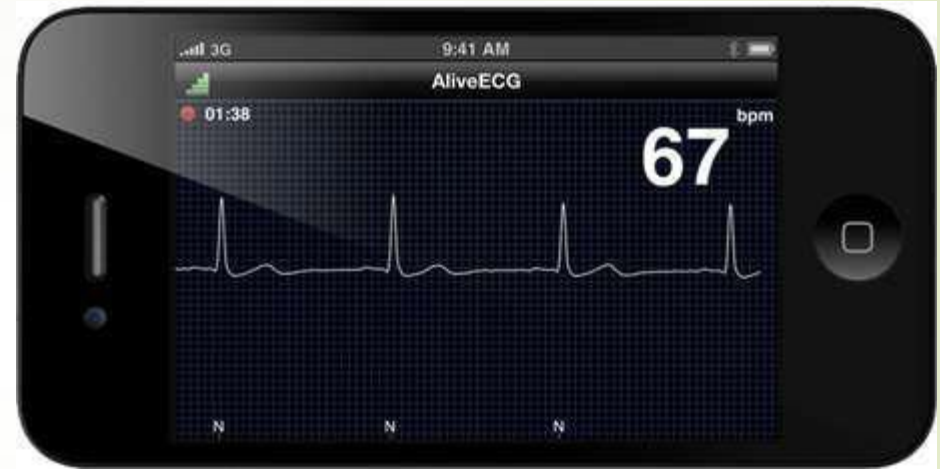


As Pulse Oximeter



As Otoscope
Portable ECG

As



As a Microscope
Glucometer



As



As Dermatoscope The Smartphone Ultrasound



Smartphone acts like Doctors

Doctors act like Smartphone

(Vigilant, Smart, Quick , Multitasking & Ever Demanding)



- Online websites containing articles, new information, new drugs, new disease of almost every branch of medical science and have easy to every doctor having internet facility.

The PubMed logo, featuring the word "PubMed" in blue, with a stylized graphic of an open book or a folded piece of paper behind the "M".

PubMed

The Medscape logo, with the word "Medscape" in a blue serif font.

Medscape

The Lancet logo, featuring the words "THE LANCET" in a black serif font.

THE LANCET

Volume 376 - Number S214 - Pages 1-48 - July 3-5, 2010

www.thelancet.com

The BMJ logo, with the letters "BMJ" in a large, blue, serif font.


BMJ

What changes we see in daily medical practice and teaching is the reflection of improved communication and technology.




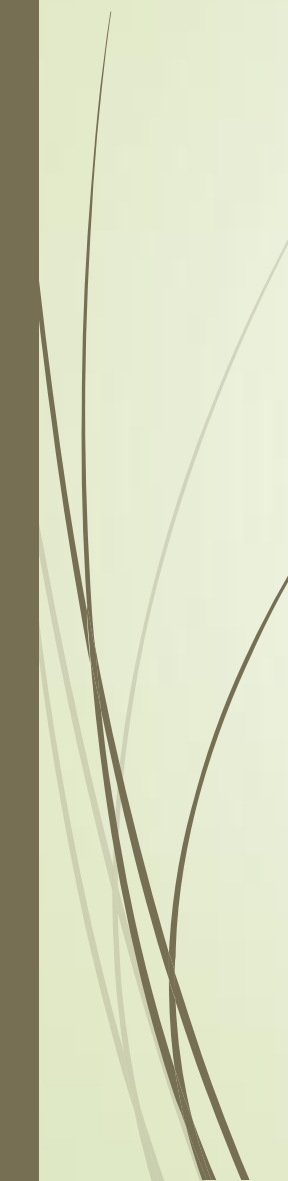



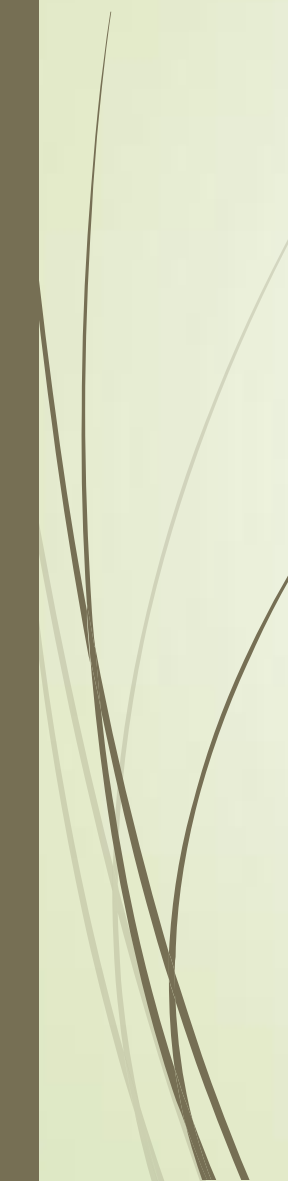
- Internet and its improvement in dissemination has given everyone to access to vast knowledge.
- Hardwire.. computer, laptop...finally smartphone revolutionized the use of internet.



Responsibilities/Jobs of Physician Teacher/ Consultant of digital era

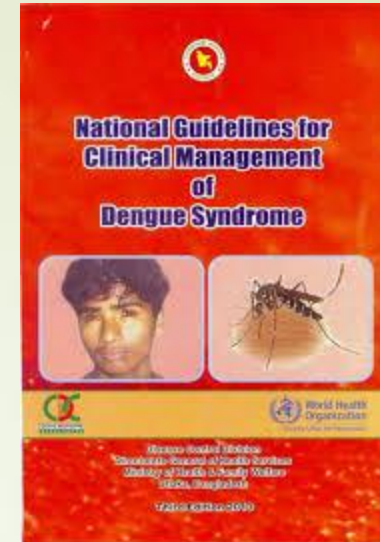
- Teaching undergrad and post grad students
- Attending Inpatients and outpatients
- Grand Round
- Board round

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- Journal Club
 - CME
 - Video conferencing
 - Telemedicine
 - Webinar
 - Giving feed back to patient by Cell phone
 - Administration

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- Carrying out Research
 - Writing scientific papers
 - Joining National and International Medical conferences
 - Documentation (Data base)
 - Death review
 - Medical Audit
 - Taking undergrad and postgrad Exam

- Preparing national guidelines for emerging diseases
- Giving health support to national disaster

All these activities are
multitasking and multifaceted









**Physicians in the Digital Era are really
BURNT OUT with their work load**





**The extensive application of
modern technology has some
major Disadvantages**



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- Now bed side clinical examination is suppressed by increasing tendency of using diagnostic equipment.
 - There is significant reduction of contact between doctor and patient.
 - Health related cost greatly increased for the patients.

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- In the last 2 - 3 decades Medicine field has expanded a lot from its main trunk to many branches as subspecialties and sub-subspecialties.
 - Sub- specialty Physicians have developed **tunnel vision** in treating patients instead of opportunity to develop wide spectrum of knowledge.

Cyber Attack Spreads Across 74 Countries; Some UK Hospitals Crippled

Published in 12 May 2017, FOX News


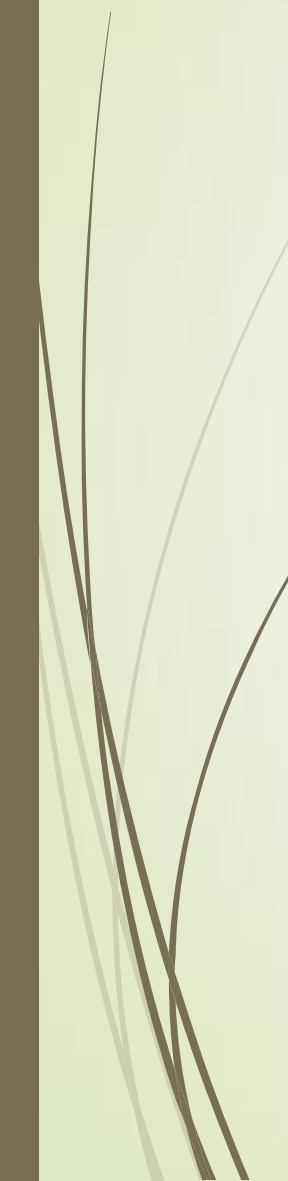



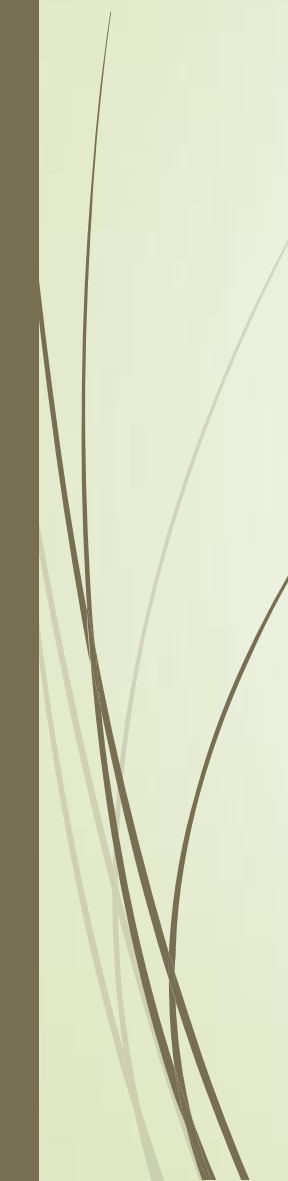
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- The impact of the attacks caused phone lines to go down, appointments to be canceled and patients to be turned away.
 - We're entering an age known as **cyber-insecurity**.



Conclusion

- Physicians of Digital Era (PDE) is direct outcome of rapidly advanced technology and communication in health sector.
- Substantial gains in terms of productivity and health outcomes are made possible.

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- There are prominent disadvantages in parallel to promising advantages.
 - Doctor-patient communication and relation become less intimate.
 - Physicians are being exhausted, on the other hand patient's health cost has been increased.

- 
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- We have to maintain pace with this digital revolution, be up to date in every way.
 - But also must not forget our root, the base of traditional bedside clinical practice.

Robotics **Sophia** now is at Dhaka, Bangladesh





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