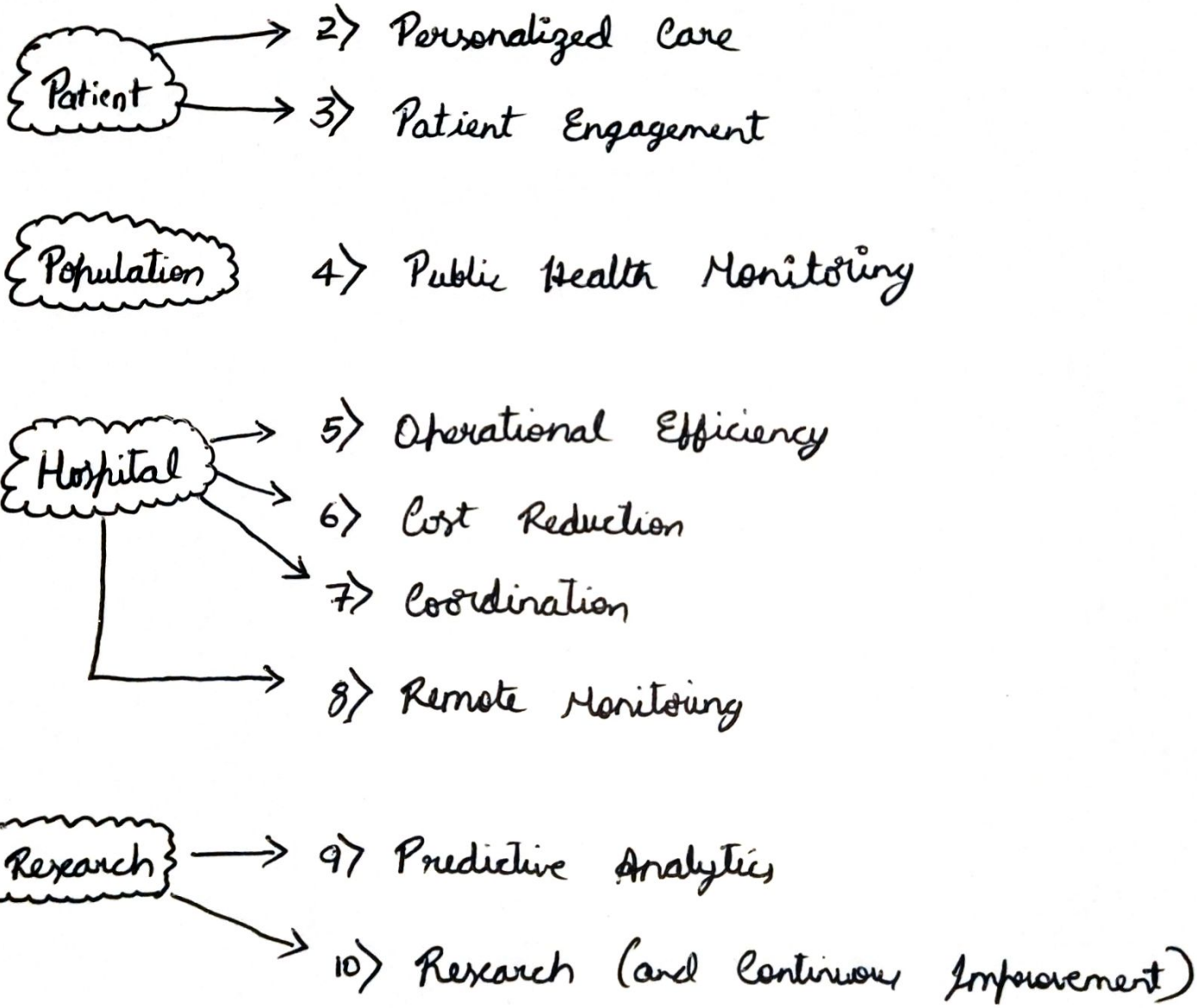
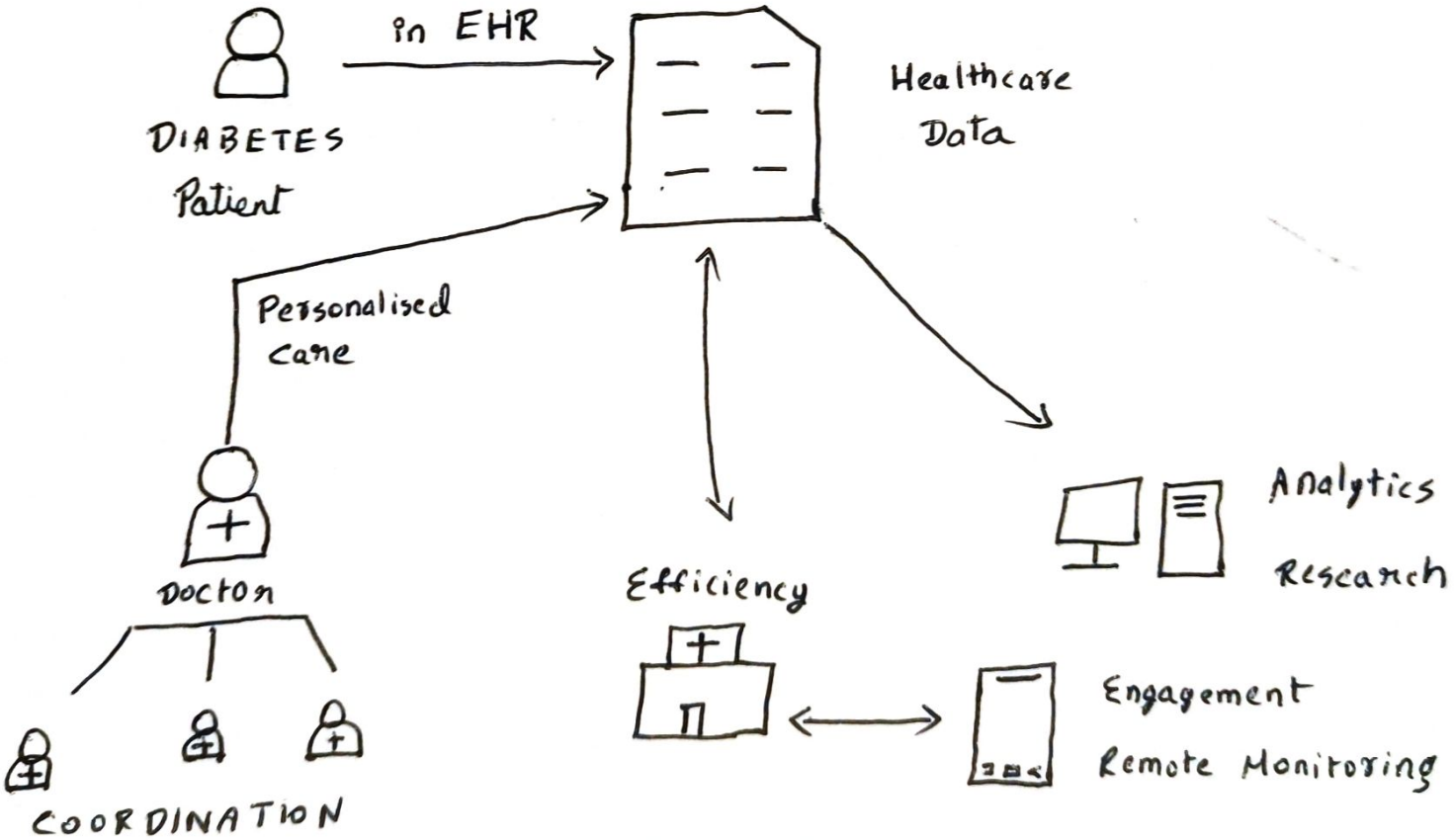
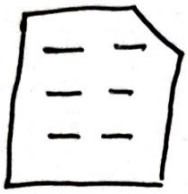
1) a) Importance of Healthcare DATA

1) EVIDENCE-based Decision Making



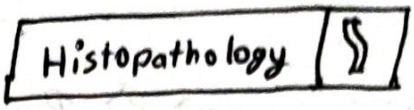

in EHR
DIABETES
Patient
Healthcare
Data
Personalised
Care
Doctor
COORDINATION
Efficiency
Analytics
Research
Engagement
Remote Monitoring

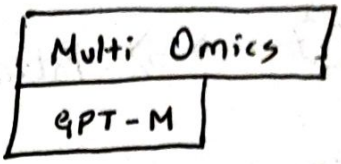
1> b> TYPES of Data



ELECTRONIC MEDICAL RECORDS

Medical Image (xray, CT scan)





TIME SERIES Data

Handwritten Clinical Notes

social Media Data

--- EPIDEMIOLOGICAL DATA - - - - - -

2) a) Programs, Organization, Career in HI

I) PROGRAMS → Degree → Assc
→ UG → PG
→ Phd
→ Certificates
→ Short Courses

II) ORGANIZATION

* AMIA → 4k
* IMIA
* IMIA
* ANI → 3k
* NeH
* CBHI
* AHIMA
* HIMSS

III) CAREER

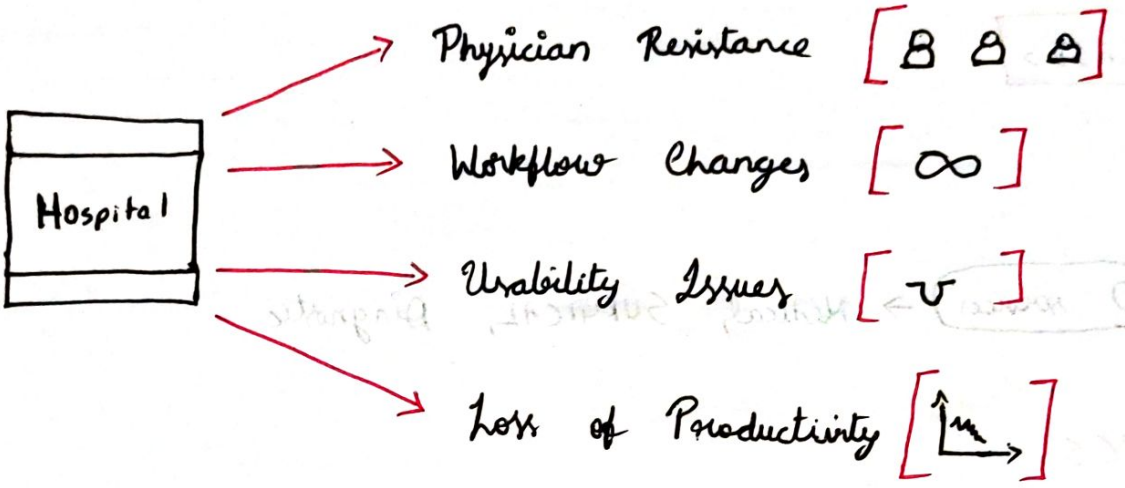
* CNIO
* Consultant
* NI
* CI
* HI Analyst
* DS Analyst
* HI Manager
* Project Manager

2) b) Fundamental principles of Security & Privacy

* Confidentiality
* Integrity
* Availability
* Authentication
* Authorization
* Privacy by design
* Compliance with regulation
* Patients Rights & Consent
* Incident Response & Reporting

3) a) Challenges with EHR adoption

$$$	Financial Barrier	$$$



Security Privacy Compliance

3) b)

EMR	EHR
Digital Version of paper record	Digital Record of patient's history
Can't be shared	Shared across medical faculty
Diagnosis	Decision-making
Simple, Cheap	Complex, Extensive
less useful for research	
Used in small healthcare	

4) a) Medical Coding

* ICD

→ WHO → ICD-10 → 70,000 → 451 · 765 · A

DISEASES

* CPT

MSD services → Medical, SURGICAL, Diagnostic

* HCPCS

L1 → CPT

L2 → Billing (medical equipment)

* LOINC

(Laboratory Tests)

* SNOMED - CT

(Diseases) (Procedures) (Findings)

wide range

* Rx NORM

(Clinical Drugs)

REIMBURSEMENT

Healthcare → CODE → (GOVT) (Insurance Claim)

Medicare
Medicaid
PM AYS

4) b) Importance of Standards

Data Accuracy

Uniform Defn

Error Reduction

Better Clinical Decision

7. Interoperability

Data Sharing

Integration (with EHR)

HIE

Consistent Data for → Research
→ BDA
→ AIML

5) a) = 3) a)

5) b) = 2) b)

6) b) = 2) a)

6) a) HI modules to streamline process

Electronic Transmission

EHR

E Coding → BILLING

Fraud Detection & Prevention

Trend Analysis

Physician Profiling

QC

IE

Bar code & RFID

Tele Medicine

7) a) Org

IOM

AAMC → Academic Org

B to E

LF

From 2a

→ Pub-Priv

7) b) Lim = 3) a)

8) a) = 2) b)

8) b)

EHR

HIE

CDSS

Telehealth

mhealth

Patient Portals

AIML

BDA

9) a) AUTH

Password

2FA

SSO

Smart Card

Encryption

Biometric

RBAC

Monitoring