

AI-EMPOWERED MEDICAL ERA

Huang Yan
Baidu Health

It's a **challenging time** for global health

Ageing Population

% Population 60+



2017 1 billion/ 13.2%

2030 1.4 billion/ 16.4%

Limited Access

Doctors per 10,000 People



25.9



7.8

China



17.9

Heavy Financial Burden

Medical Expenditure as % of Income



\$ 9536/~20%



\$ 63/~3%



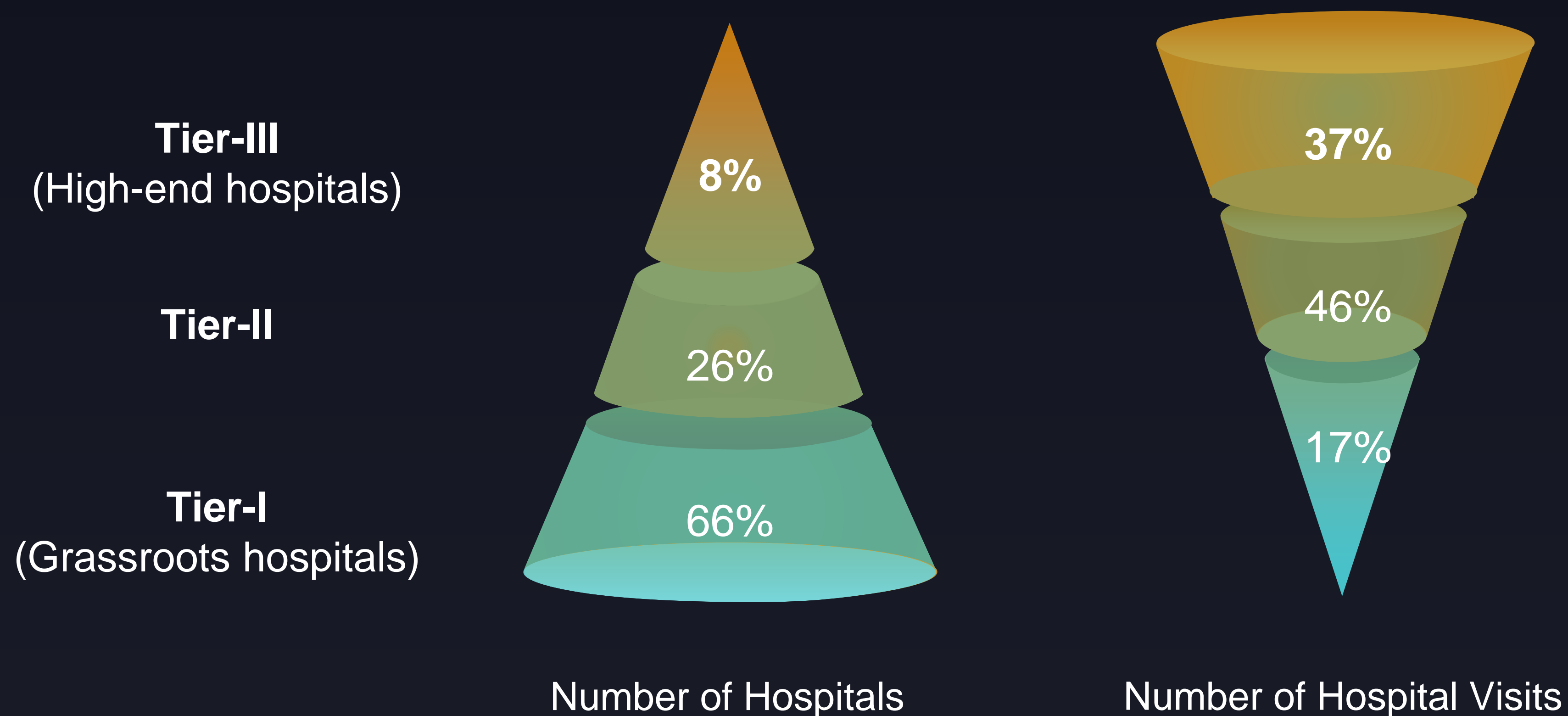
\$ 426/~10%



2030 0.36 billion/ 25.0%

China is facing a systematic **imbalance** of medical resources

Overloaded tier-III hospitals vs. Underutilized tier-I Hospitals



A TRANSFORMATION IS COMING

Four major initiatives accelerating the transformation



Government

POLICY SUPPORT



Hospitals

DESIRE FOR REVENUE
GROWTH AND COST
DEDUCTION



Patients

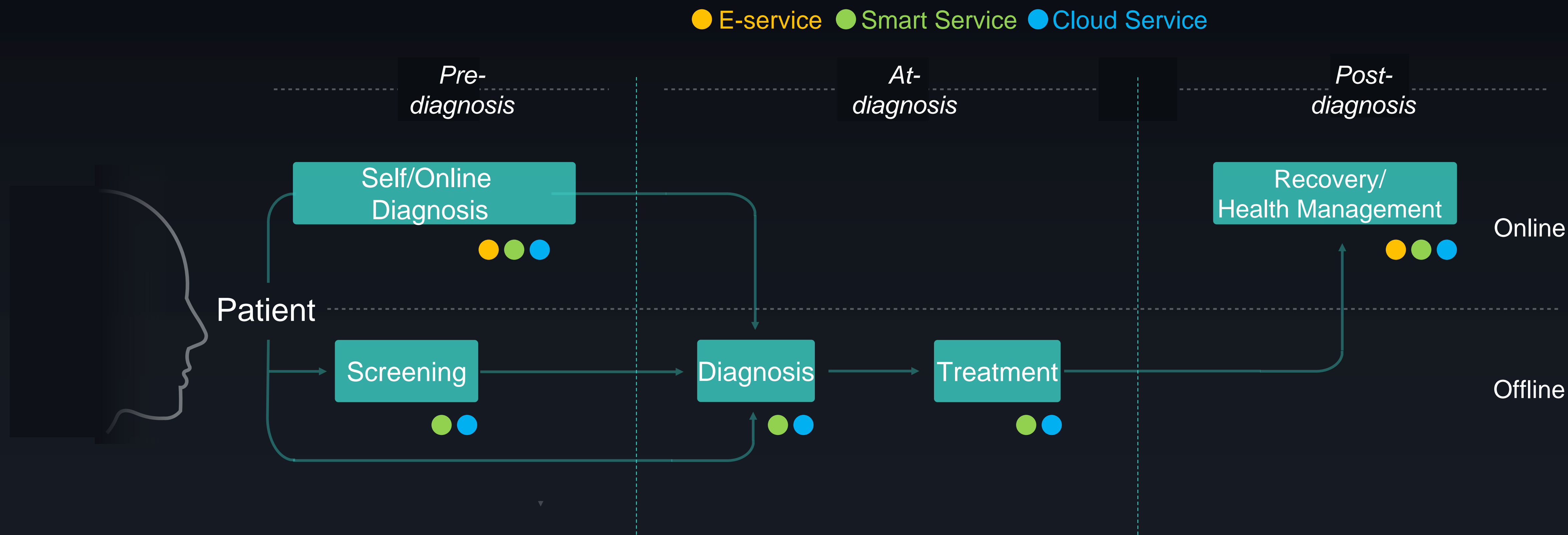
RISING INCOME,
GROWING HEALTH
AWARENESS



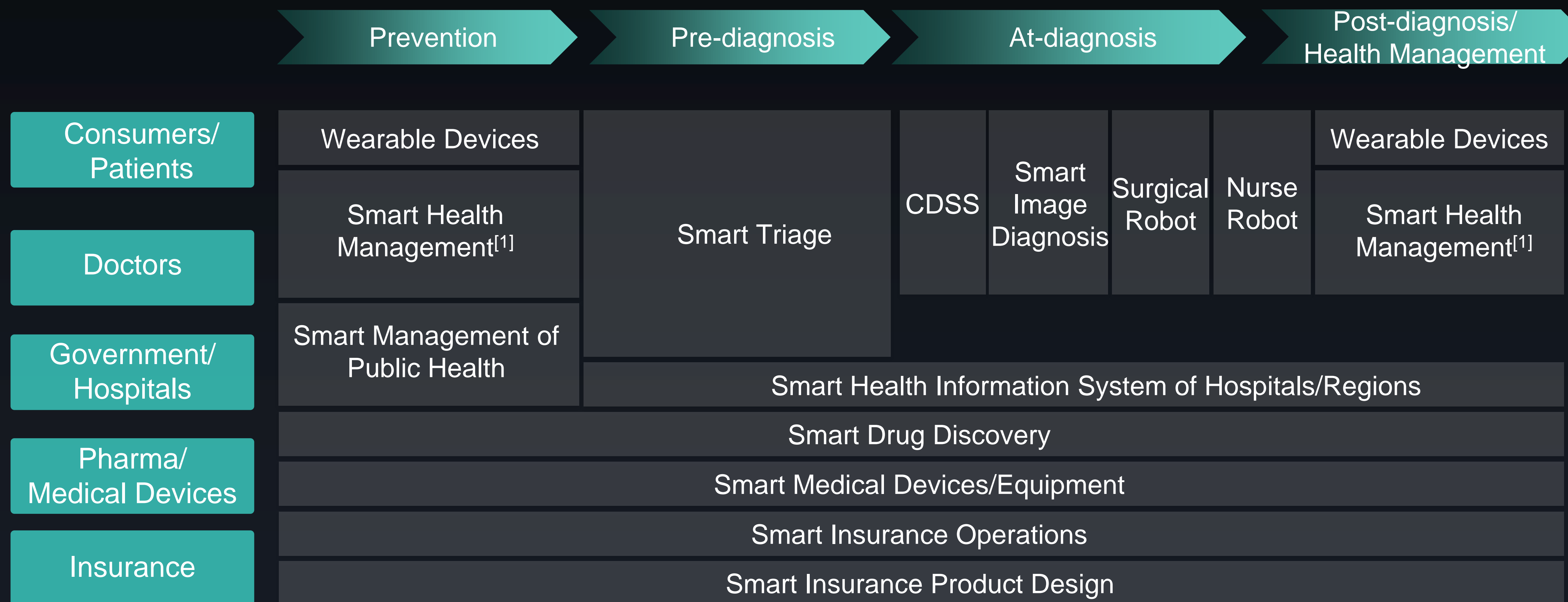
Technology

INTERNET,
AI, BIG DATA

Hospital-centric to patient-centric, reactive treatment to health management



AI will affect **every** major stakeholder and the **entire** healthcare process



[1] Smart Health Management includes: smart consultancy on health-related issues, smart chronic disease management, smart care for the elderly, etc.

HOWEVER,
transforming a technology to a reliable tool remains a challenge



Data

Scale

Quality

Structuralization

Standardization

Privacy & Security



Architecture

Domain Adaption

Accuracy

Robustness

Interpretability

BAIDU PRACTICES: AI-DRIVEN HEALTHCARE

Primary-level disease screening: **Govt. priority**, but **inadequate** service

Treatment



Prevention

Ocular Fundus Diseases



Baidu AI Fundus Screening System:

A simple and reliable way to detect eye diseases at early phases



3 + Fundus Diseases

94% Accuracy

Interpretable Results

10 s Report Generation Time

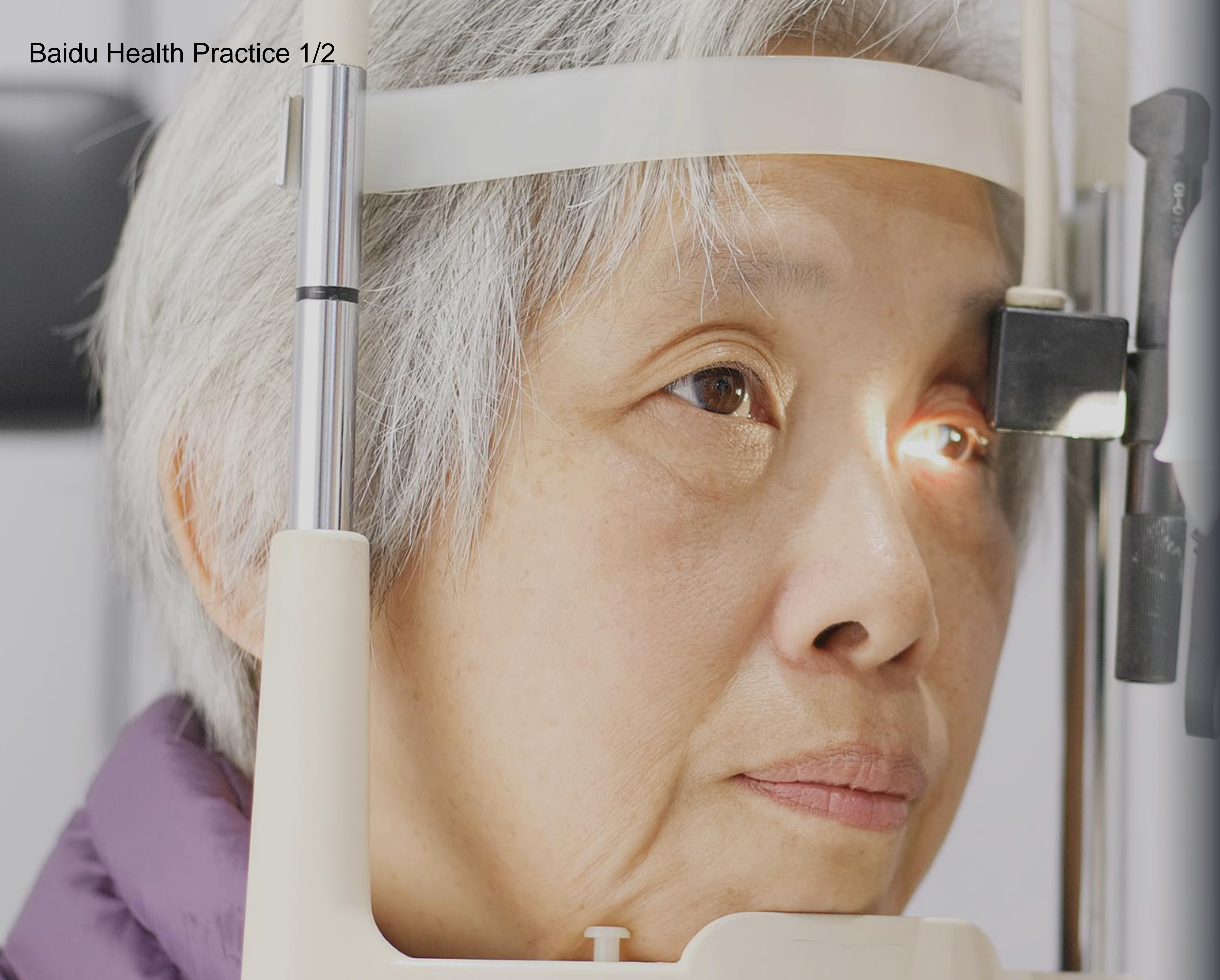
500 Machines in Donation

Screening in action

Mrs. Zhou

Age:70

Diabetic Retinopathy



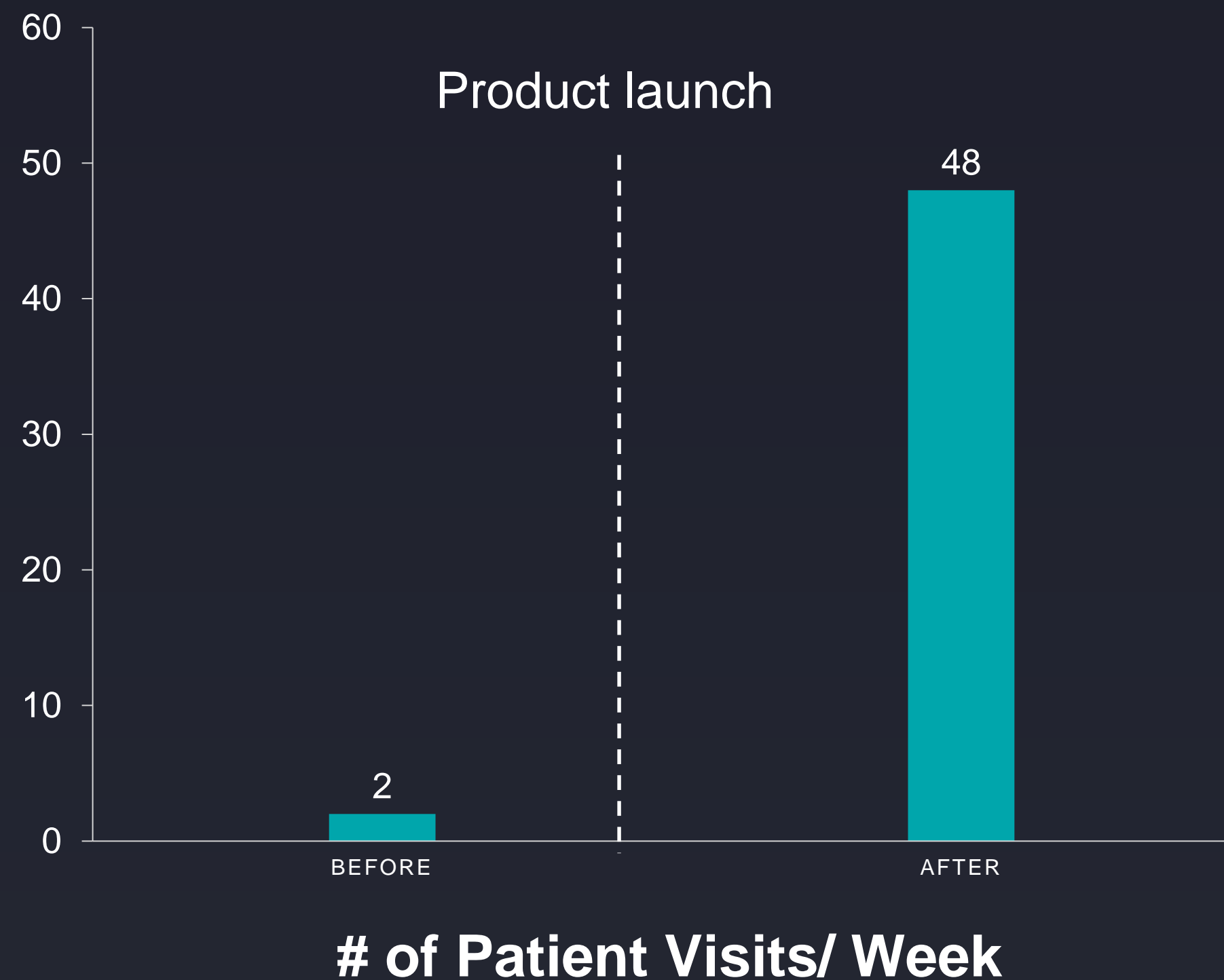
Promising positive feedback from tier-I hospitals



“With AI to automatically analyze the fundus image, the report can be delivered within 10 seconds, and the accuracy is quite high, which **greatly enhances our work effectiveness.**”

— He Yongsong
Doctor of Deqing County Hospital

Gaoyao People's Hospital

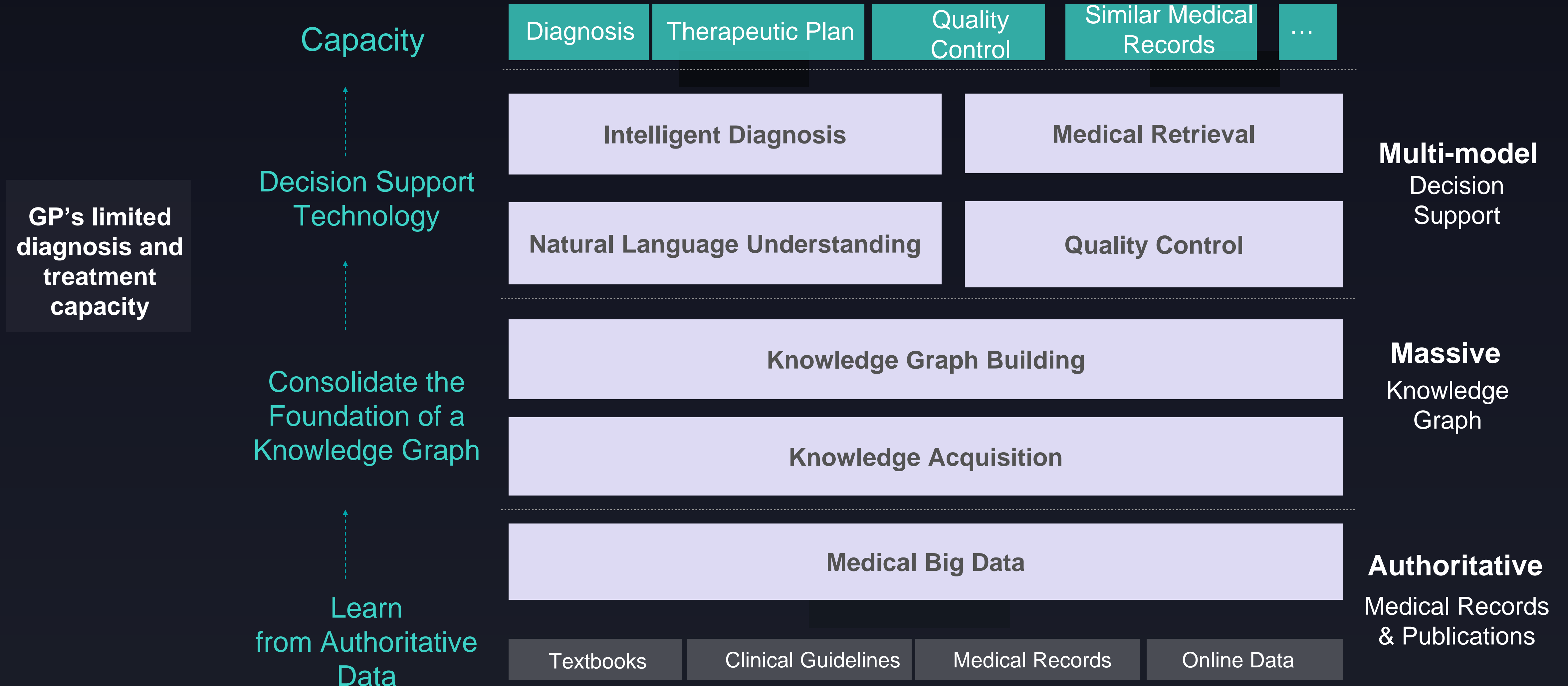


349 patients were diagnosed positive

- 232** Diabetic Retinopathy
- 32** Glaucoma
- 206** Age-related Macular Degeneration

Clinical Decision Support System (CDSS)

a professional assistant to general practitioners (GPs)



Broad coverage, high accuracy, and real-time results



27

Departments

Interpretable

Evidence-Based
Architecture

4,000+

Diseases

Real-Time

Assistant

95%

Accuracy of Top 3 Diseases
Recommendation

We've launched the tool in **13 provinces** and assisted more than **11,000** doctors



24

Hospitals

11,000

Doctors

PHYSICIAN FEEDBACK:

“Very comprehensive”

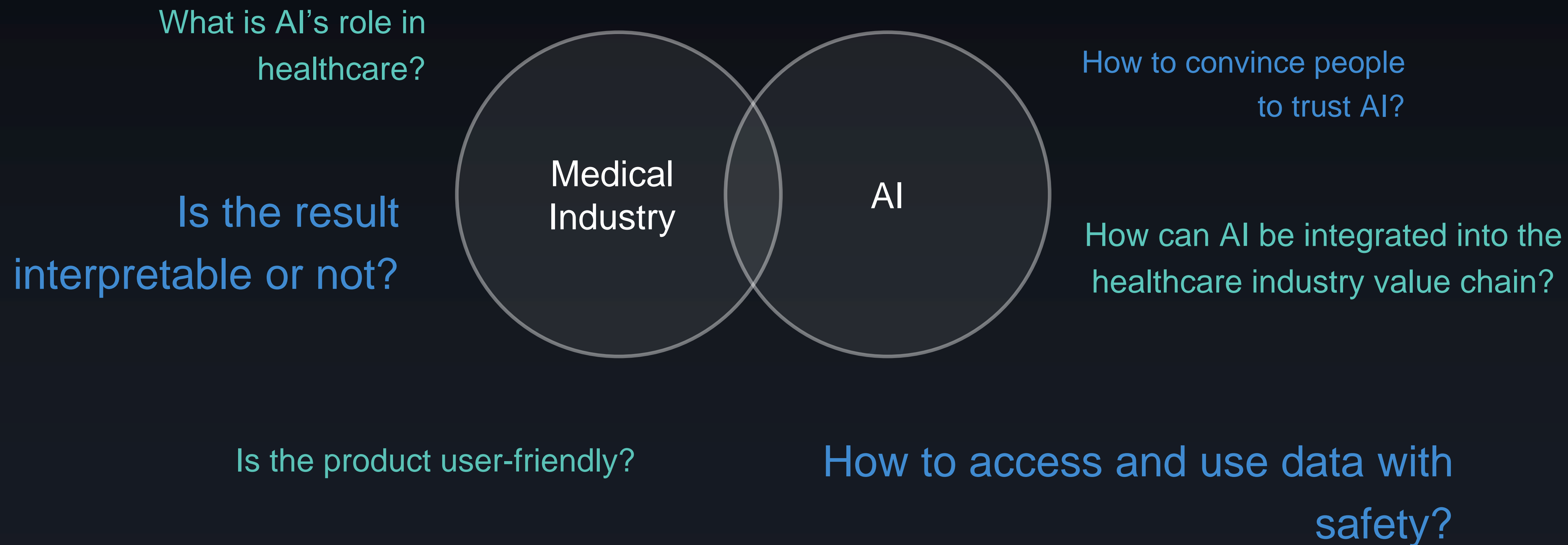
“Helps when I’m not sure about the prescription dosage”

“Examination result is interpretable”

“No longer need to type in patients’ symptoms”


**THE FUSION OF AI AND HEALTHCARE
IS NOT WITHOUT CHALLENGES**

We must grapple with the **big questions**



Equal Healthcare for All



A close-up photograph of a young child with dark skin and short hair, looking intently at a doctor. The doctor is wearing a white lab coat and is partially visible on the right side of the frame. The lighting is dramatic, with the child's face in shadow and the doctor's coat highlighted. The background is dark and out of focus.

Equal Healthcare for All
Love has no borders
AI has no borders
Healthcare has no borders
...

THANKS