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# Alpha Health

— Chansheng, Siyuan, Yuxiao, —  
Huake, Jenny

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# Rise of usage in telemedicine

**11%** of patients in 2019



# Rise of usage in telemedicine

**11%** of patients in 2019



**46%** of patients in 2020



**Telemedicine works well,  
except for times when**

# Telemedicine works well, except for times when

- Patients
  - Are unfamiliar with medical terms

...Dysdiadochokinesia...



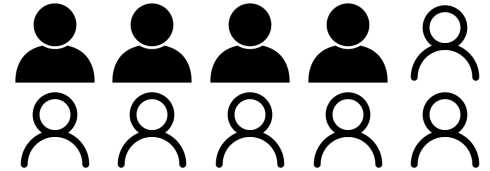
...?



# Telemedicine works well, except for times when

- Patients
  - Are unfamiliar with medical terms

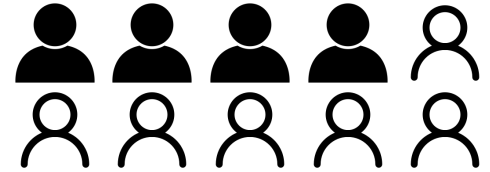
36%



# Telemedicine works well, except for times when

- Patients
  - Are unfamiliar with medical terms
  - Experience information overload

36%



# Telemedicine works well, except for times when

- Patients
  - Are unfamiliar with medical terms
  - Experience information overload
  - Lack of visit summaries and notes





# Telemedicine works well, except for times when

- Doctors
  - Are preoccupied when taking notes
  - Have difficulty recalling and summarizing appointments



# Introducing Alpha Health

- Real-time medical transcription

**Doctor:** How are you doing?

**Patient:** Not very well. I have a sore throat and then coughing constantly.

**Doctor:** Do you have a fever?



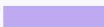
**Patient:** Yes, And I also have aches and chills.

**Doctor:** Do you have the history of bronchitis?

**Patient:** Yes. I had similar symptoms when I was young.

# Introducing Alpha Health

- Identification and categorization of medical terms.

Symptoms  Negation  Diagnosis 

Medication  Procedure 

**Doctor:** How are you doing?

**Patient:** Not very well. I have a **sore throat** and then **coughing** constantly.

**Doctor:** Do you have a **fever**?

**Patient:** Yes, And I also have **aches** and **chills**.

**Doctor:** Do you have the history of **bronchitis**?

**Patient:** Yes. I had similar symptoms when I was young.

# Introducing Alpha Health

- Providing insight into unfamiliar terms

**Doctor:** Do you have the history of bronchitis?

Bronchitis is a common lung infection. It causes inflammation and congestion in the small airways (bronchioles) of the lung. Bronchitis is almost always caused by a virus.

# Introducing Alpha Health

- Post-visit report generation

## Clinical Summary

### General Information

Name: Mike Bryant

Appointment Time: 3/11/2021 @ 23:16:24

ID: 929553

Address: 4998 Ponderosa Way, Goleta

Date of Birth: 12/12/1998

Phone: 805 403 6262

### Symptoms

- Fever
- Sore throat
- Coughing
- Aches
- Chills

### Diagnosis

- Bronchitis
- Pneumonia

### Treatment, and Procedure

- Chest X-ray

### Medication

- Amoxicillin

# Solution

Let's see how our application solves these problems



# Patient Mike

- Not familiar with medical terms
- Hard to follow the conversation



## Dr. Luo

- Works 54 hours every week
- Wants a convenient way to recall the patients for the previous visits





# Live Demo

# Alpha Health

## Audio Transcription

**Doctor:** How are you doing?

**Patient:** Not very well. I have a sore throat and then coughing constantly.

**Doctor:** Do you have a fever?

**Patient:** Yes, And I also have aches and chills.

**Doctor:** Do you have the history of bronchitis?




**Patient:** Yes. I had similar symptoms when I was young.

# Alpha Health

Audio Transcription

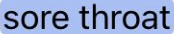




Terms Recognition


Symptoms  Negation  Diagnosis 

Medication  Procedure 

**Doctor:** How are you doing?

**Patient:** Not very well. I have a  **sore throat** and then  **coughing** constantly.

**Doctor:** Do you have a  **fever**?

**Patient:** Yes, And I also have  **aches** and  **chills**.

**Doctor:** Do you have the history of  **bronchitis**?

**Patient:** Yes. I had similar symptoms when I was young.

# Alpha Health

Audio Transcription

Terms Recognition

Report Generation

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### Diagnosis

- Bronchitis
- Pneumonia

### Treatment, and Procedure

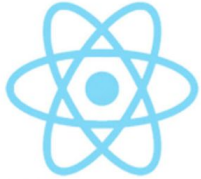
- Chest X-ray

### Medication

- Amoxicillin

# Alpha Health Architecture

FrontEnd:



React

BackEnd:



Database:



Firebase

# System Architecture



Video conferencing



Alpha Health

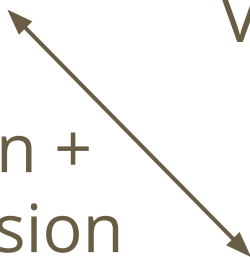
# System Architecture



Video conferencing

Transcription +  
Comprehension

Alpha Health



# System Architecture

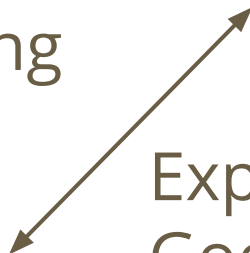
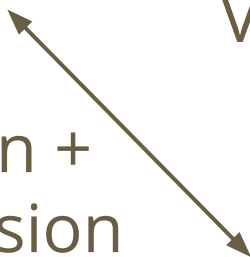


Transcription +  
Comprehension

Video conferencing

Explanation from  
Google dictionary

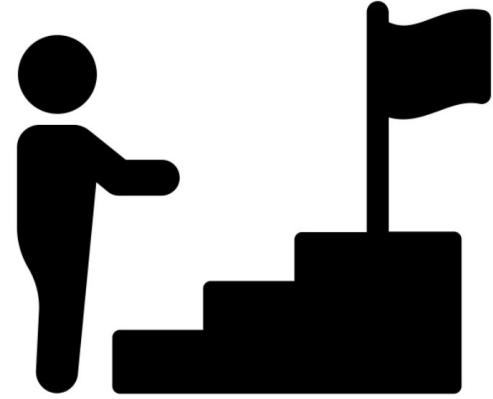
Alpha Health





# Challenges

- Realtime Transcription
- Report Generation



# More understanding

Transcription and explanation are provided in real-time

Symptoms  Negation  Diagnosis   
Medication  Procedure 

**Doctor:** Do you have the history of **bronchitis**?

Bronchitis is a common lung infection. It causes inflammation and congestion in the small airways (bronchioles) of the lung. Bronchitis is almost always caused by a virus.

# Less Notetaking

Summaries are generated automatically

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### Medication

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# Fewer Repetitions

Reduce the follow-up questions

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- Bronchitis
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### Treatment, and Procedure

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### Medication

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# Better Follow-up

Review the past visit

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### Diagnosis

- Bronchitis
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### Treatment, and Procedure

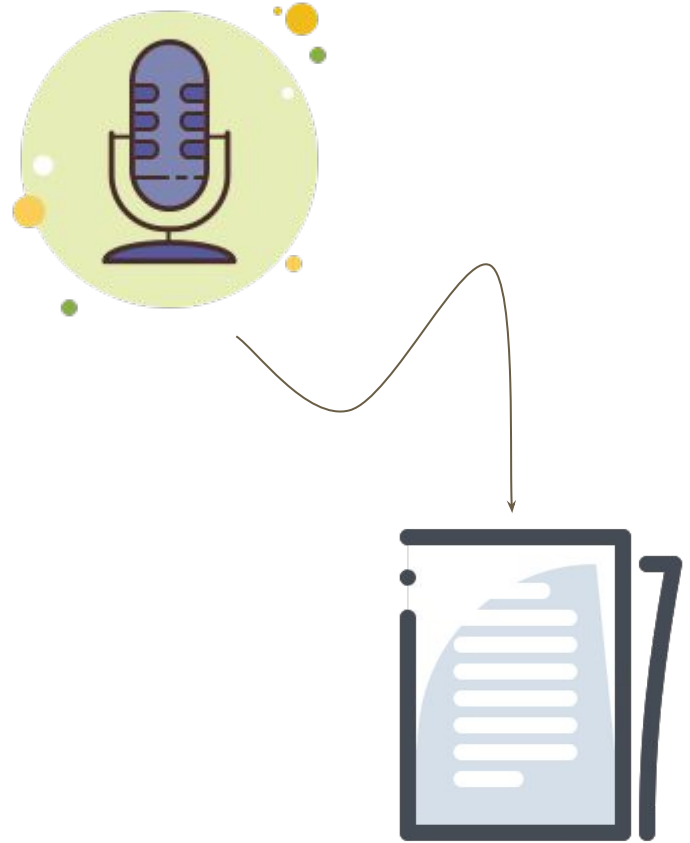
- Chest X-ray

### Medication

- Amoxicillin

# Final Thoughts

- ❑ Bridging the knowledge gap between doctors and patients
- ❑ Providing accurate, valuable data for analysis to deliver improved care quality





**Mentors: Anav Sanghvi • Brendan Haverlock • Aditya Nadkarni**

**Changsheng Su, Jenny Aoyama, Siyuan Wang, Huake He, Yuxiao Luo**