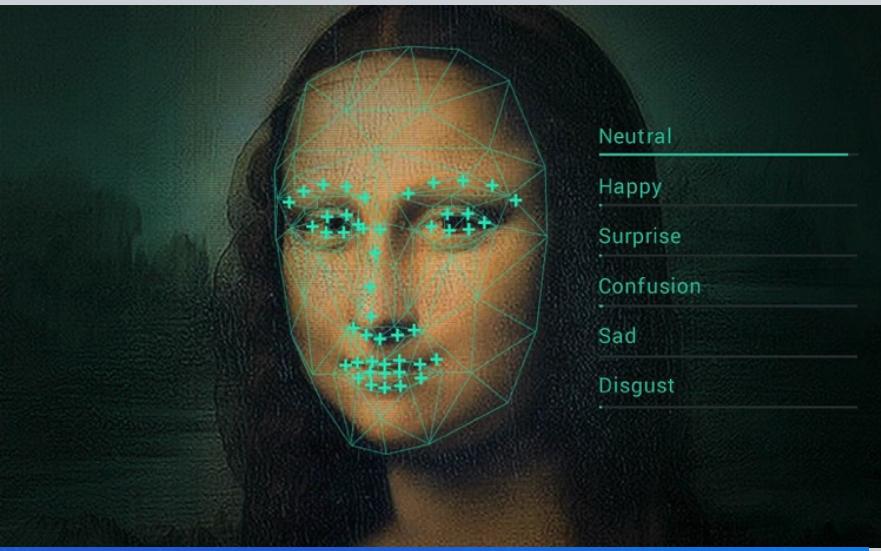
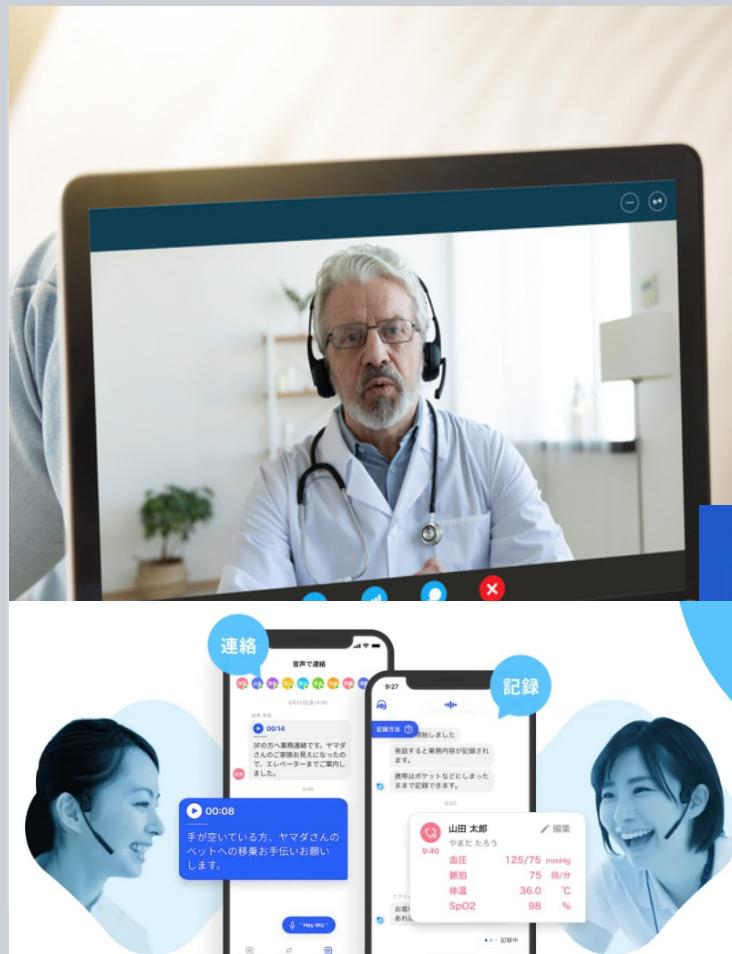


# STEP 1: To understand the patient better

LEVERAGING EXISTING PLATFORMS, USING AI FOR PT PSYCHOSOCIAL ANALYSIS AND TRANSCRIBING EHR, PROVIDE RECOMMENDATIONS ON PT ACTIVATION PLAN



## DESCRIPTION

Incorporate AI analysis (and/or additional features) in existing HCP-PT consultation process to

- Build PT psychosocial profile
- Automate key EHR details transcription
- Generate PT relevant activation plan & tactics for HCP to consider

## TARGET USERS

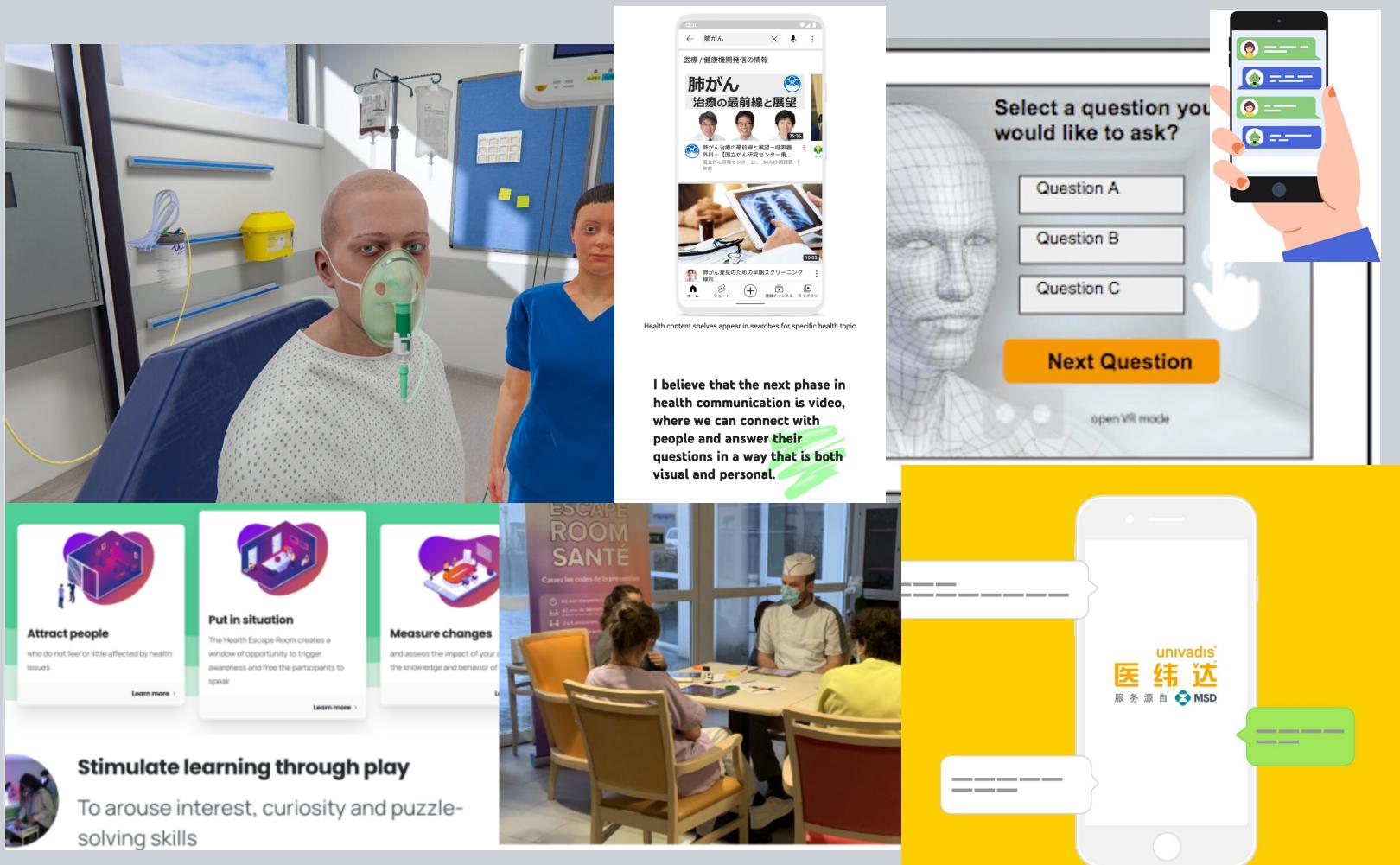
PT & HCP

## EFFECT/IMPACT

Improve the efficiency in HCP – PT communication by reducing time in EHR recording and PT need analysis; build trust and PT activation for future adherence

# STEP 2: Information & training for HCP

USE NEW & EFFECTIVE TRAINING METHODS & CHANNELS TO BUILD HCP EMOTIONAL INTELLIGENCE, LITERACY & COMMUNICATION SKILLS IN PT MEDICAL INTERVIEWS



## DESCRIPTION

Explore new ways of learning and training to build HCP empathy and communication skills in medical interviews & improve the HCP – PT communication experiences & efficiency. E.g.: VR, interactive storytelling, situational roleplay; chatbots; other digital channels

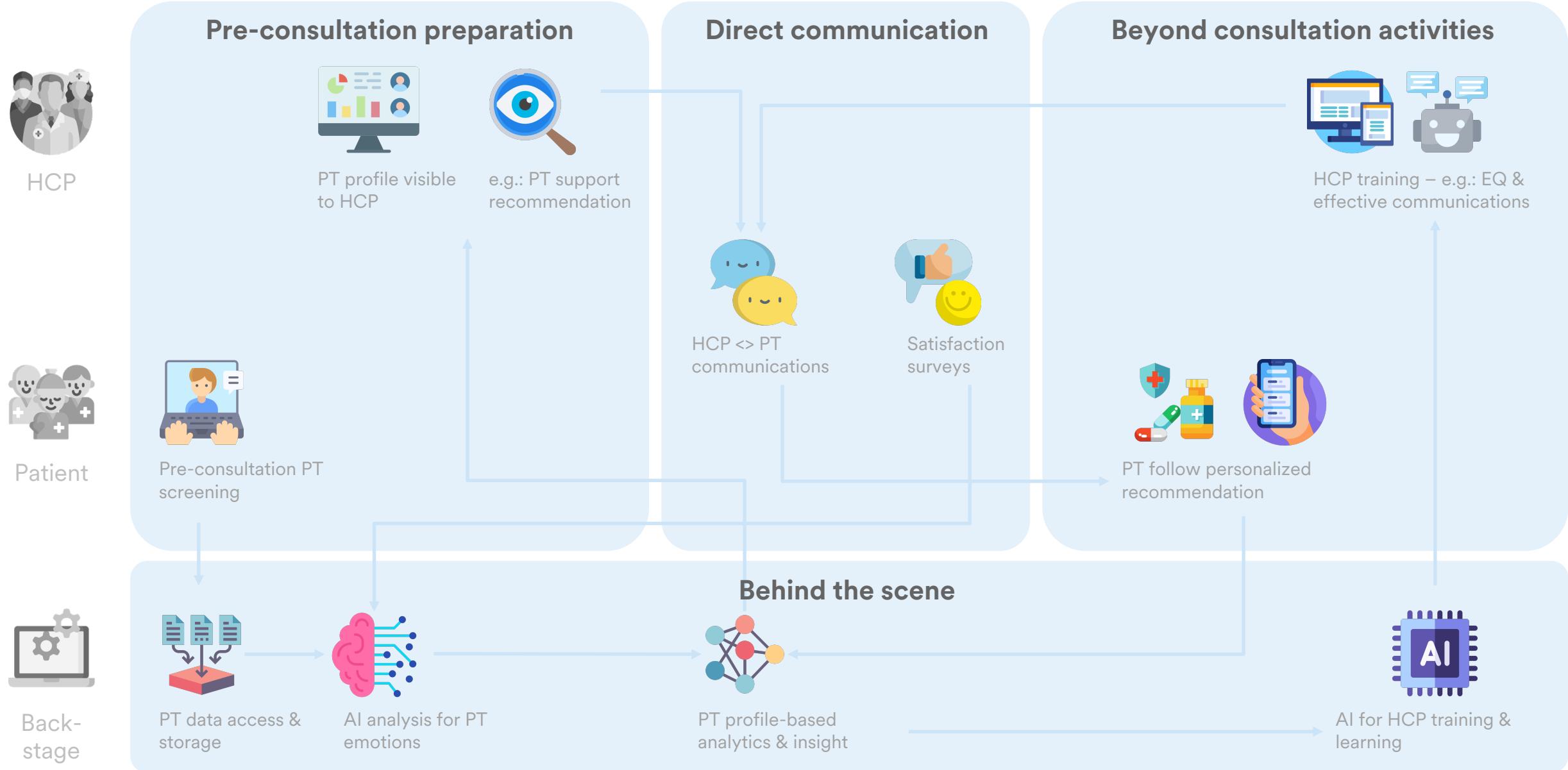
## TARGET USERS

HCPs

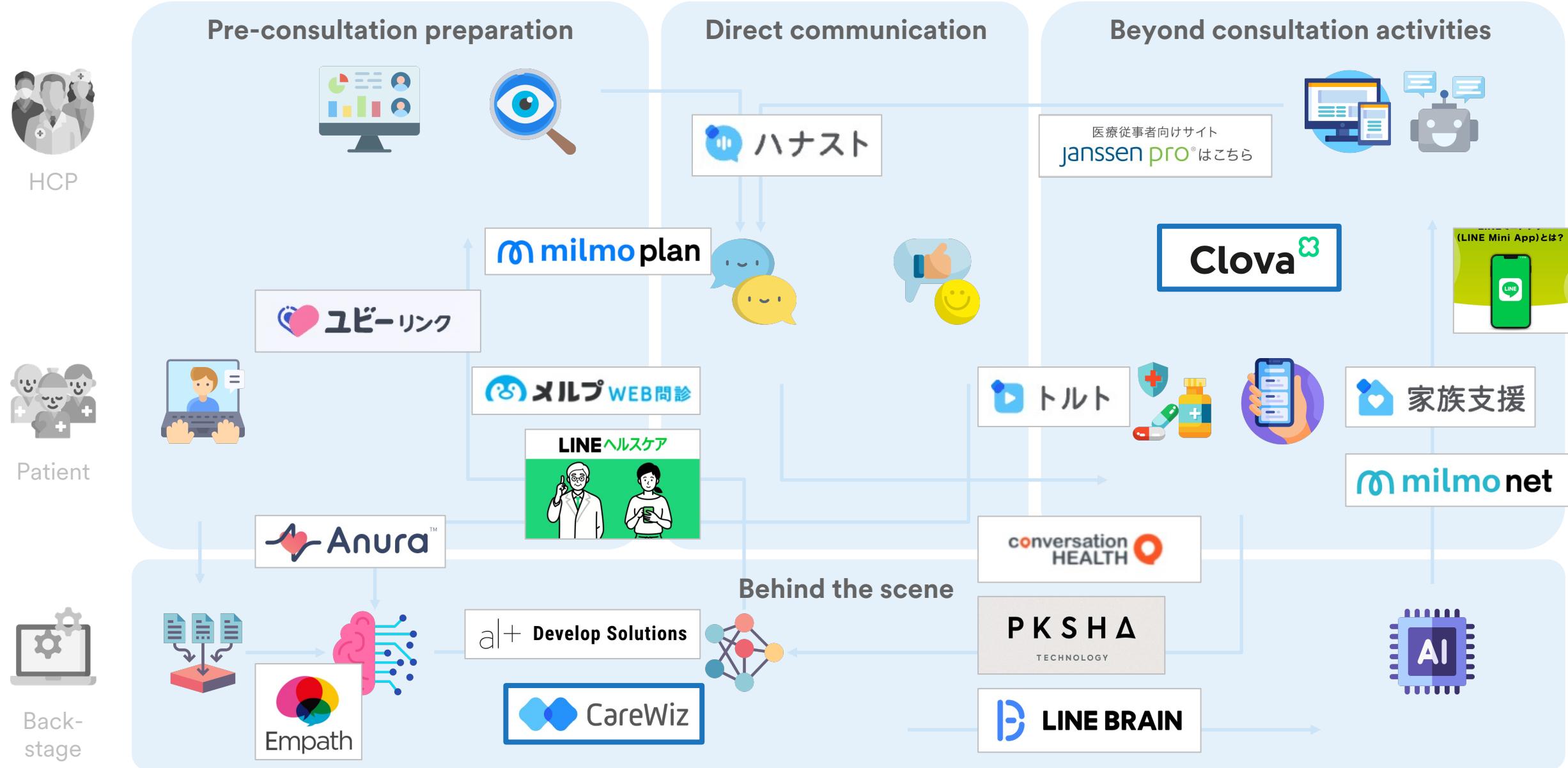
## EFFECT/IMPACT

Emotional intelligence & empathy;  
Medical interview training;  
Communication skills;

# SOLUTION IDEAS & PARTNERSHIP OPPORTUNITIES



# SOLUTION IDEAS & PARTNERSHIP OPPORTUNITIES



## 1

# Improving accessibility to existing contents by leveraging on existing platforms



Consider leveraging or collaborating with other knowledge platforms and establish the HCP network, such as M3 or MedPeer

Make existing feature and contents more accessible via platforms such as Line Mini App, or Chatbot supported by Clova virtual AI assistant

Possible to create an ecosystem by linking the features of LineHealth and opening both PT & HCP's access to Clova

Expandable: Additional opportunity includes allowing PT to use Mini App to track and record their daily symptoms and other conditions

## BENEFIT

Widely adopted in Japan with unique user identifiers  
Connected network of people & services  
Expandable to broader service ecosystem

## CONSTRAINT

Could be expensive to work with LINE

1

# Improving accessibility to existing contents by leveraging on existing platforms

\*FOR DEMONSTRATION PURPOSE ONLY

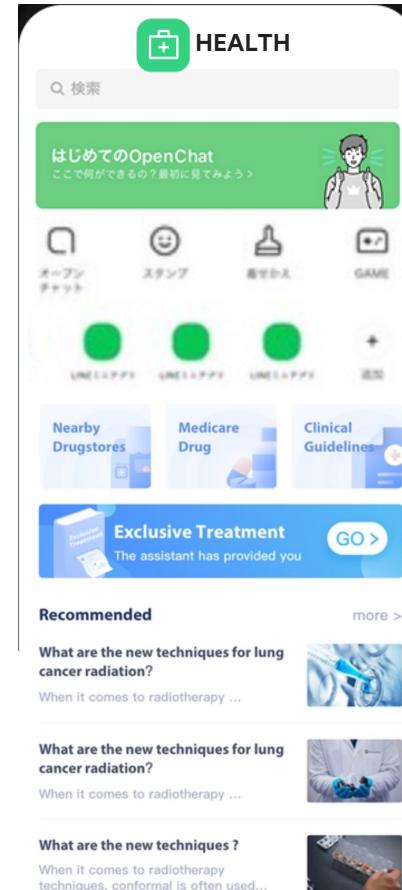
Line Mini-app



Login / Choose HCP or PT access



Relevant features & medical info from Janssen / other forums



e.g.: PT could log symptoms or receive reminders



e.g.: Integrate with Line Healthcare tele consultation



Alternatively, HCP can type keywords in chat to find relevant information

# NOTABLE PROSPECTS

## PARTNERSHIP WITH LINE



HCP



Patient



Back-  
stage



Pre-consultation PT screening



PT data access & storage

### LINEヘルスケア



Include additional questions during PT virtual set-up (for psycho-social profiling)



HCP <> PT communications



Satisfaction surveys

### Clova



HCP training – e.g.: EQ & effective communications



Use as a potential HCP training channel & platform, with Chatbot for interactive storytelling and established user base

Eventually, connected all services between patient, HCP, medical information & data

### LINE BRAIN



AI analysis for PT emotions

PT profile-based analytics & insight



AI for HCP training & learning

- Explore using Line Brain AI to
- Analyze patient profile
  - Establish HCP education chatbot

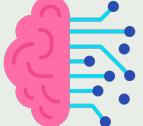


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Use as a potential HCP training channel & platform, with Chatbot for interactive storytelling and established user base



Eventually, connected all services between patient, HCP, medical information & data

# NOTABLE PROSPECTS

## PARTNERSHIP WITH LINE



HCP



Patient



Back-  
stage



e.g.: PT support  
recommendation

 milmo plan

(LINE Mini App)とは?



PT profile-based  
analytics & insight

Create easily accessible  
access channel (e.g.: mini-app)  
Consider leveraging or  
collaborating with other  
knowledge platforms and  
establish the HCP network,  
such as M3 or MedPeer

医療従事者向けサイト  
**janssen pro®**はこちら

 M3, Inc.

 MedPeer



PT follow personalized  
recommendation

 milmo net

Apart from existing Janssen contents,  
also consider incorporating more  
personalized service in the mini-app.  
E.g.: Build in feature for patients to  
record symptoms via mini-app  
PT & Doctors can view, assign or  
receive treatment plan via the mini-app



AI for HCP training &  
learning

# NOTABLE PROSPECTS

## PARTNERSHIP WITH LINE

### Clova Chatbot:

Line's AI chatbot. It is possible to link with various communication tools such as Facebook, in-house website, in-house chat tool, as well as LINE service. Utilizes machine learning model to provide correct answers, able to design intuitive conversation and scenarios.

### Line mini apps:

Use LINE as an alternative information platform for HCPs & PT to access medical information & updates (Line x MedPeer x Jpro x Carepath)



### **LINEヘルスケア**



### **LINE BRAIN**



### Line Healthcare:

Line x M3 launched it in 2020 with selected clinics in Greater Tokyo Area to provide telemedicine services in respond to Covid-19

Including patient pre-engagement survey or unique features for specific conditions

### Line Brain:

Corporation-facing AI technology services; provide chatbot technology, character recognition or voice recognition technology, etc.

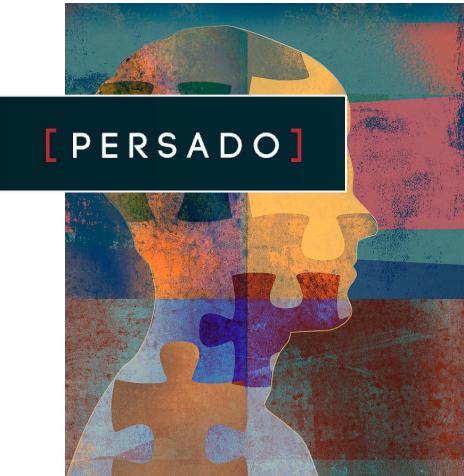
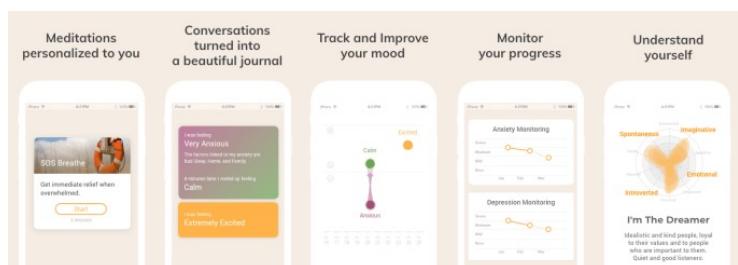
<https://linecorp.com/ja/pr/news/ja/2020/3055>

<https://line.me/ja/terms/policy/>

[https://terms2.line.me/TelemedicineCMS\\_LHC\\_Privacy?lang=ja](https://terms2.line.me/TelemedicineCMS_LHC_Privacy?lang=ja)

2

# Psychosocial profiling & PT engagement recommendations via enhancing existing PT – HCP communication tools



Explore possibility of incorporating an additional step during patient self-reporting process with a short video clip recording / additional questionnaire for emotional analysis.

Automate the consultation sessions by converting communications into useful ClinRO & sync to **existing EHR systems**

Possible to extend usage to include patients' side-effect reporting for specific DA & medications

Based on PT profile, provide personalised engagement recommendation and care pathways

## BENEFIT

Patient data & insight access  
If done right, able to build trust & establish good PT adherence behavior foundation for long-term

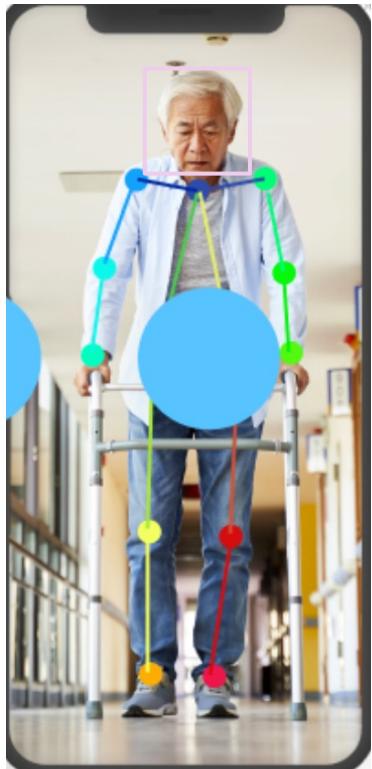
## CONSTRAINT

Involves feature enhancement or connecting various services of different companies  
Limited adoption of tools across clinics  
Tele-consultation only allowed for initial consultation

2

# Psychosocial profiling & PT engagement recommendations via enhancing existing PT – HCP communication tools

Patient or support group tracking patient status



PT psychosocial profile analysis



Schedule check-up or appointments with HCPs



Live transcribe consultation details to HER data



Generate personalized care plan for the patient based on the insights



If we can work with LINE, these are features we can consider to build in to the mini-app as well.

# NOTABLE PROSPECTS

## PARTNERSHIP WITH CareWIZ



HCP



PT profile visible  
to HCP



Patient



Pre-consultation PT  
screening



Back-  
stage



PT data access &  
storage



AI analysis for PT  
emotions



Facilitate patient pain  
level & emotional  
status analysis



HCP <> PT  
communications



Automate the consultation  
sessions by converting  
communications into  
useful ClinRO & sync to  
existing EHR systems (?)



PT profile-based  
analytics & insight



Engage patient  
caregivers for daily  
symptom tracking &  
monitoring



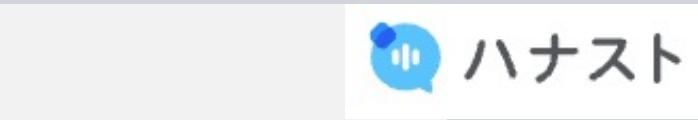
PT follow personalized  
recommendation



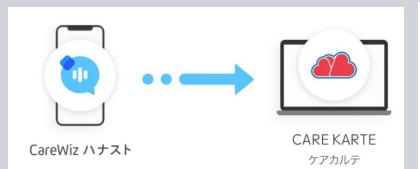
Consider use this  
to analyse pt pain  
level (RA, IBD) d2d

# NOTABLE PROSPECTS

## PARTNERSHIP WITH CareWIZ



So if we could automatically record on the spot using "voice" during long-term care work, wouldn't it be possible not only to reduce the work burden but also to spend more time with users ...? The AI app "Hanast" that can be input by "voice" was born from the voice of the nursing care site. Save time & reduce double works



Family care worries solution app:  
Patient & caregiver support app, keeping diary, sharing concerns and able to make appointments; AI to support question & enquiries

Torto app:  
Gait analysis AI: Video of walking -> analysis report.

AI developed based on the knowledge of physiotherapists supports on-site assessment.

Consider use this to monitor pt pain level (RA, IBD)

# CONSIDER

## PARTNERSHIP WITH UBIE / SIMILAR SERVICE



HCP



PT profile visible  
to HCP



Patient



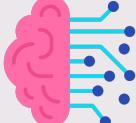
Pre-consultation PT  
screening



Back-  
stage



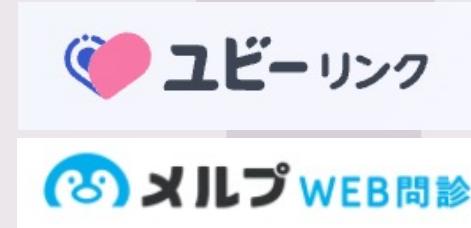
PT data access &  
storage



AI analysis for PT  
emotions



PT profile-based  
analytics & insight



Explore possibility of incorporating an additional step during patient self-reporting process with a short video clip recording / questionnaire for emotional analysis.

This can alternatively be used for mental wellness check.

Explore possibility of building new features for patients' side-effect reporting for specific DA & medications

(Tracking existing patients whose symptoms are exacerbating or reoccurring)



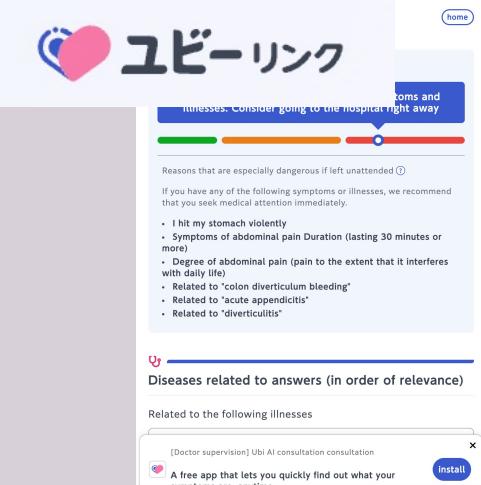
PT follow personalized  
recommendation

# CONSIDER

## PARTNERSHIP WITH UBIE + EMOTIONAL AI SERVICE

Ubie:  
Explore possibility of incorporating an additional step during patient self-reporting process with a short video clip recording for emotional analysis based on facial and voice analysis.

This can alternatively be used for mental wellness check.



< Back

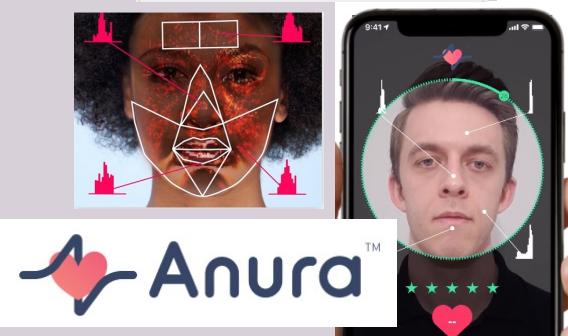
Please tell us one of the symptoms you are interested in this time.

Please enter one symptom

Try typing in short words.

Good example My stomach hurts

bad example When I woke up at night yesterday, my stomach hurts and now I'm getting a little better ~



<https://www.nuralogix.ai/>  
<https://www.webempath.com/>

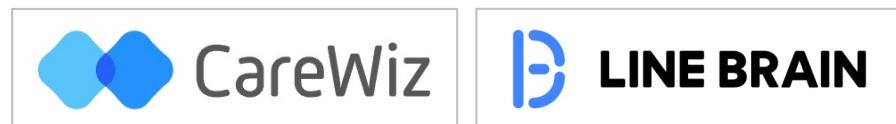
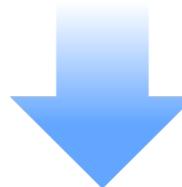
Alternatively:  
Explore possibility of building new features for patients' side-effect reporting & management for specific DA & medications

(For existing patients whose symptoms are exacerbating or reoccurring)



Melp AI consultation:  
Similarly, teleconsultation to identify emergency level based on patient input details

# 3 Using AI to aggregate and analyze existing PT/HCP/Clinical forums to identify insights, gaps & opportunities



Leveraging on existing patient/HCP forums in JP; PT insight aggregation & social media listening; aggregate insights & apply AI analysis to identify top PT unmet needs, frustrations & healthcare gaps

e.g.: Aggregating medical interview templates across different clinics for easily overlooked DA

Aggregating top PT frustrations/unmet needs via keyword and associations

Based on social forum interactions to identify the most relevant tips and advices for HCP, PT & caregivers

## BENEFIT

Use existing platform or forums  
No disruption to existing PT/HCP workflow

## CONSTRAINT

Data access & useful insight analysis  
May not have immediate visible solution output

# Using AI to aggregate and analyze existing PT/HCP/Clinical forums to identify insights, gaps & opportunities

\*FOR DEMONSTRATION PURPOSE ONLY

e.g.: Keyword analysis based on search patterns & content browsing patterns

Figure 5 – Keyword sub-category potential (patients)

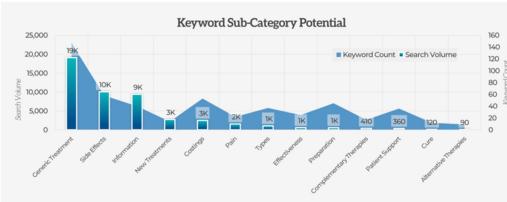


Figure 6 – Keyword sub-category potential (HCPs)

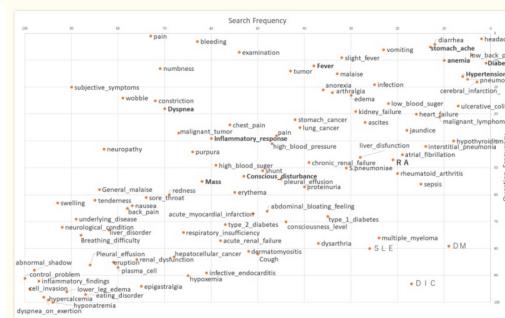
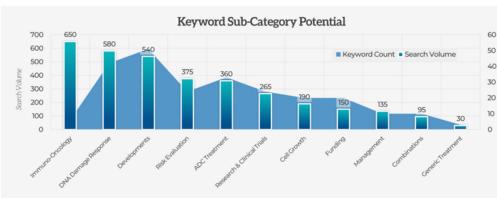


Figure 3

Ref Table 4

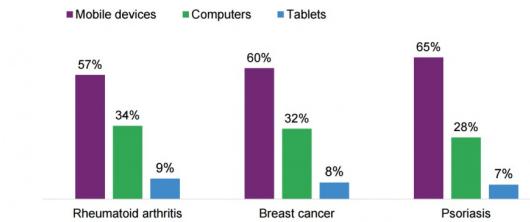
Search rate by age and age-specific queries.

Age (years)	Mean (SD)	High Frequency
10-20	2.9 (1.5)	dyspnea, stomachache, subjective symptoms, plasma cell
20-30	24.3 (8.6)	plasma cell, inflammatory findings, hypoxemia, cell invasion, dyspnea on exertion
30-40	26.0 (4.9)	diabetes mellitus, jaundice
40-50	24.6 (5.2)	abnormal shadow
50-60	13.9 (4.1)	rheumatoid arthritis, high blood pressure, abnormal shadow
60-70	7.3 (3.4)	interstitial pneumonia, lung cancer, stomach cancer, high blood pressure, atrial fibrillation, <i>Streptococcus pneumoniae</i> infection

Digital device usage pattern & behavior

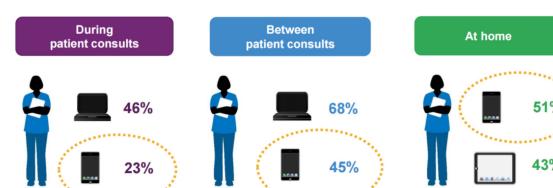
Health info-seeking is mobile-first

Devices used for condition-related Google searches  
Condition keyword + related queries (e.g., rheumatoid arthritis symptoms)



Physicians use smartphones throughout the workday

Percentage of US physicians who use respective device at different points throughout workday



Sentiment analysis & high vote PT support insights



Rie-chan @ richan  
April 6, 2022 19:33



I'm depressed again. I don't have friends, I don't have people to talk to, I can't rely on my brothers and sisters, and my work doesn't go well .



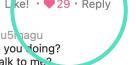
Rie @ river  
good morning.

Is that so. One person is hard. Rie-chan, if I'm okay, I'll be remote. I know that you want to be friends with people of similar age, not of the brilliant group like me . It will be transmitted. I seemed to have only two people born in the same year in peering. why? , Other 40.50. Is there a charge? What? I was so lonely. I can't give up on you. As a measure that no one can speak. I'm like this. 1. Make friends at the hospital. I found it by peering. I was like my daughter and my first cancer friend. 2. I called out to the peering person (to meet Kaorinnu-san) and went to visit the hospital. → It may not be possible with Corona now. 3. Now in Corona, I'm trying to talk remotely. Anyway, if you're peering, posting, and going any further, why not join a smile school, an event, or remotely? If you have family care, you may not be able to go outside, but you can participate remotely, right? How is it? If that's not possible, I'd like to meet someone... commented on your diary. With people in the vicinity. Please take one step.

April 7, 2022 5:41 · Like! · ❤️ 29 · Reply



Memetchi @ magu5magu  
Rie-chan, what are you doing? Would you like to talk to me? Mifui-san, @ love49 Would you like to talk with us at Zoom again? April 8, 2022 11:19 · Like! · ❤️ 4. Reply\_



Miffy @ love49  
-san, thank you for your voice 😊 April 8, 2022 13:08 · Like! · ❤️ 2. Reply\_



Miffy @ love49  
Hello Rie-chan 😊 Let's talk if it's convenient for you. April 8, 2022 13:10 · Like! · ❤️ 5. Reply\_



Rie-chan @ richan  
@river  
Rie, sorry for being late. Recently, I have had low back pain, and my vaginal discharge may be mixed with blood.

I'm a little depressed because I can only rest my body on my days off when I'm

# CONSIDER

## AGGREGATE INSIGHTS FROM EXISTING PLATFORMS



HCP



Patient



Back-  
stage



PT data access &  
storage



AI analysis for PT  
emotions

al+ **Develop Solutions**



PT profile-based  
analytics & insight

**CareWiz**

**PKSHA**  
TECHNOLOGY

**LINE BRAIN**



AI for HCP training &  
learning



### 2 Tool to support patient -supporter communication

- Online forum for patients to share pain points in their daily lives
- Encourage supporters to gain better understanding of disease



Leveraging on existing patient forums in JP; PT insight aggregation & social media listening; aggregate insights & apply AI analysis to identify top PT unmet needs, frustrations & healthcare gaps



PT follow personalized  
recommendation

# CONSIDER

## AGGREGATE INSIGHTS FROM EXISTING PLATFORMS



HCP



Patient



Back-  
stage



Aggregated medical interview templates across clinics – explore using AI to analyze & identify the differences in medical interview processes



a+ Develop Solutions



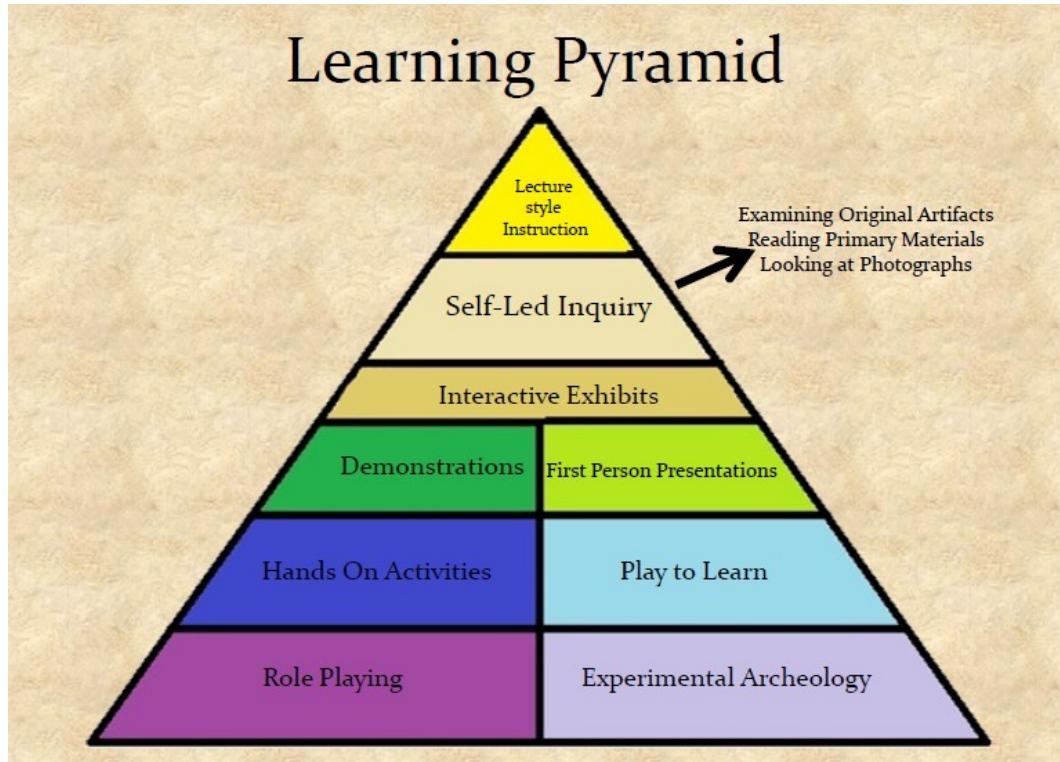
PKSHA  
TECHNOLOGY



AI for HCP training & learning

## 4

# Adopting novel methods for HCP training & education (e.g.: emotional intelligence)



Most HCP trainings are done via lectures, self-led inquiries, first person presentations (e.g.: seminars & workshops) or demonstrations (e.g.: institutions)

However, there're more effective learning methods such as hands-on-activities, play-to-learn, role-playing (can be conducted with digital means), experimental archeology etc. Learning via teaching others has been recorded as an effective way for knowledge retention as well.

If we wish to conduct trainings for HCP, especially soft-skills such as emotional intelligence, the new formats are good for considerations.

Alternatively, work with accreditation organisations on organized clinical empathy programs, etc.

## BENEFIT

Convert some prospects to KOLs  
Expertise & reputation

## CONSTRAINT

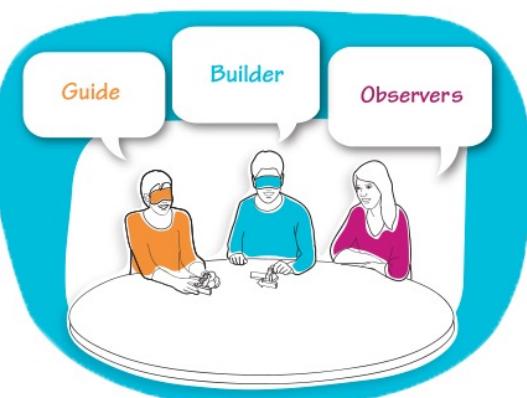
Content development, longevity & scalability consideration; data generation consideration



# 4

## Adopting novel methods for HCP training & education (e.g.: emotional intelligence)

Design training programs that is learning via doing / role-playing



Develop curriculums, courses, programs or even labs with local institutions or universities

Track & Respond to Emotion  
Things to remember when your patient is emotional.

SKILLS/CHAPTERS

- 1 Emotion and Cognition
- 2 Dealing with Emotions
- 3 Naming an Emotion
- 4 Emotions as Data**
- 5 Respecting an emotion
- 6 Isn't There Anything More?

A screenshot of a digital curriculum page titled 'Track & Respond to Emotion'. It includes a title 'Things to remember when your patient is emotional.', a sidebar with 'SKILLS/CHAPTERS' and a numbered list, and a video thumbnail of a man speaking.

### Standardized Patient Program

Standardized patient simulation involves the use of individuals trained to portray the roles of patients, family members or others to allow students to practice physical exam skills, history taking skills, communication skills and other exercises.

### Experiential Learning

A Standardized Patient (SP) is a person carefully recruited and trained to take on the characteristics of a real patient thereby affording the student an opportunity to learn and to be evaluated on learned skills in a simulated clinical environment.



Dr. Betsy Hunt teaches a student about the appropriate way to examine a patient

During an interaction with a student the SP may:

- present case history in response to questioning by the student
- undergo a limited physical examination at the student's direction
- assist students in developing their communication and clinical skills
- assist students in working through difficult emotional



Promoters of Patient Safety

Work with accreditation organizations in Japan to promote the program uptake among HCPs (would this be feasible?)



Japan Accreditation Council  
for Medical Education



# CONSIDER

## NOVEL TRAINING METHODS



HCP



Patient



Back-  
stage



HCP training – e.g.:  
EQ & effective  
communications

Consider using social media channels such as Youtube channels or Social Media accounts to educate and disseminate medical insights



Working with clinics or institutions to structure new training programs; including learning via playing, role playing sessions, structured courses, simulation labs, etc.



Explore opportunities to digitize these programs (e.g.: roleplay could be done via chatbot or VR programs to some degree)

