An Analysis on the User Journey of Leading Telehealth Solutions

Improving Healthcare with AI

Overview

- Babylon
- Doctolib
- Zava
- K health
- Halodoc
- Galileo
- Dr+ on demand
- KRY
- Ada
- Lyra
- Buoy
- 98point6
- Amwell (American well)
- MDLIVE

Babylon

Artificially intelligent symptom checking and self-care, Face-to-face doctor consultation

Technology

Knowledge graph
Structured medical graphs showing relationships between diseases, symptoms, and conditions

Comprehensive health record
Individual patient medical history to help doctors make better informed decisions

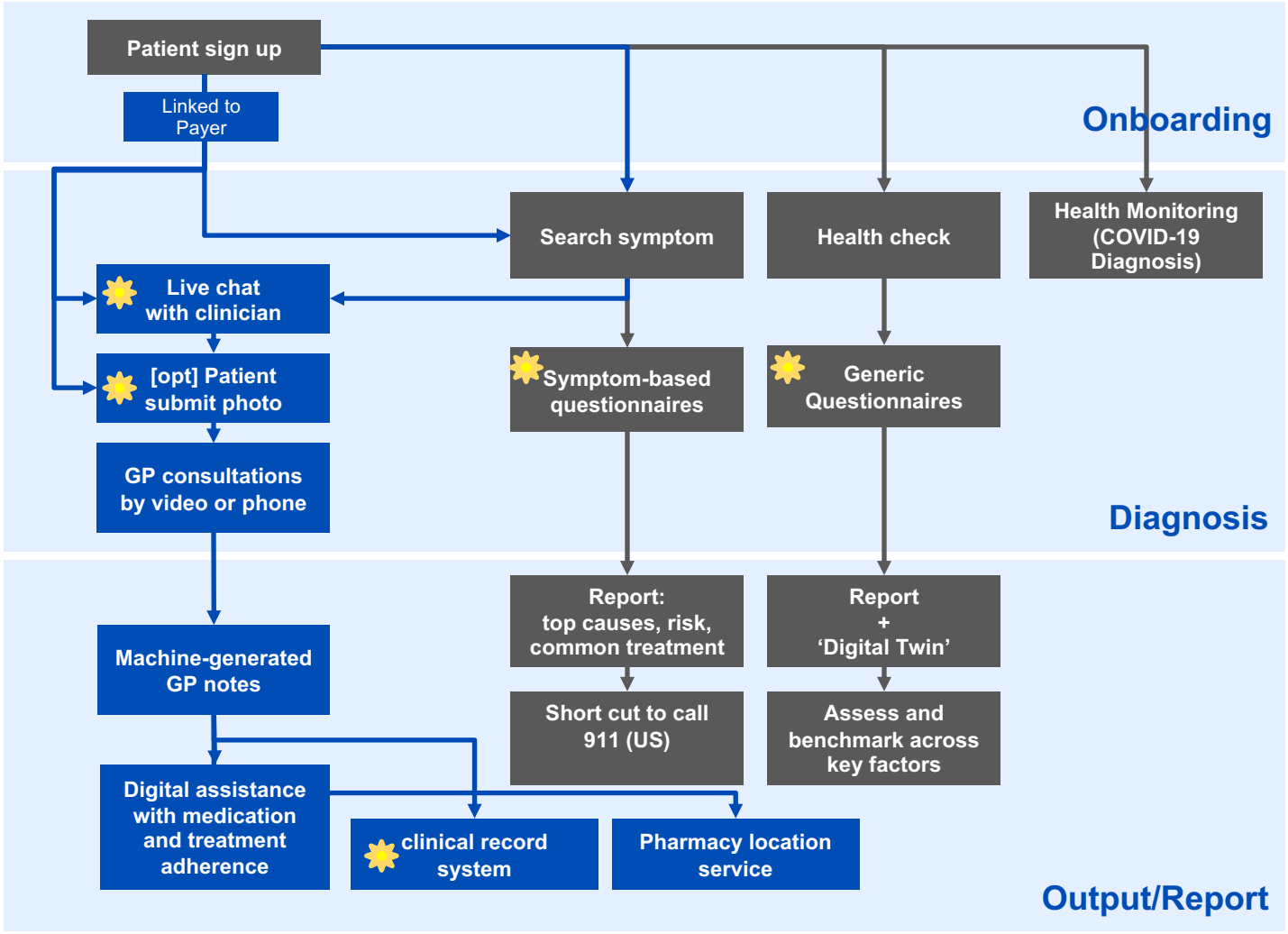
Probabilistic graphical model
Identify conditions by processing combinations of symptoms, diseases and risk factors

Potentials for AI Integration

AI-assisted diagnosis based on patient photo
Improve accuracy and efficiency of clinician live chat, lower malpractice rate with AI-suggested diagnosis

Improve user experience
Shorten patient questionnaires, hence improve user experience

Easy patient follow-up
Allows patients to upload new lesion photo and follow up with physicians



Doctolib

French-based provider of consultation management software

Technology

2B solution for healthcare professionals
Improve the efficiency of operation, lower no-show rate, communicate with patients and cooperate with colleagues

2C solution for patients to manage their health online
Individual patient medical history, availability of physicians, make appointments, video consultation

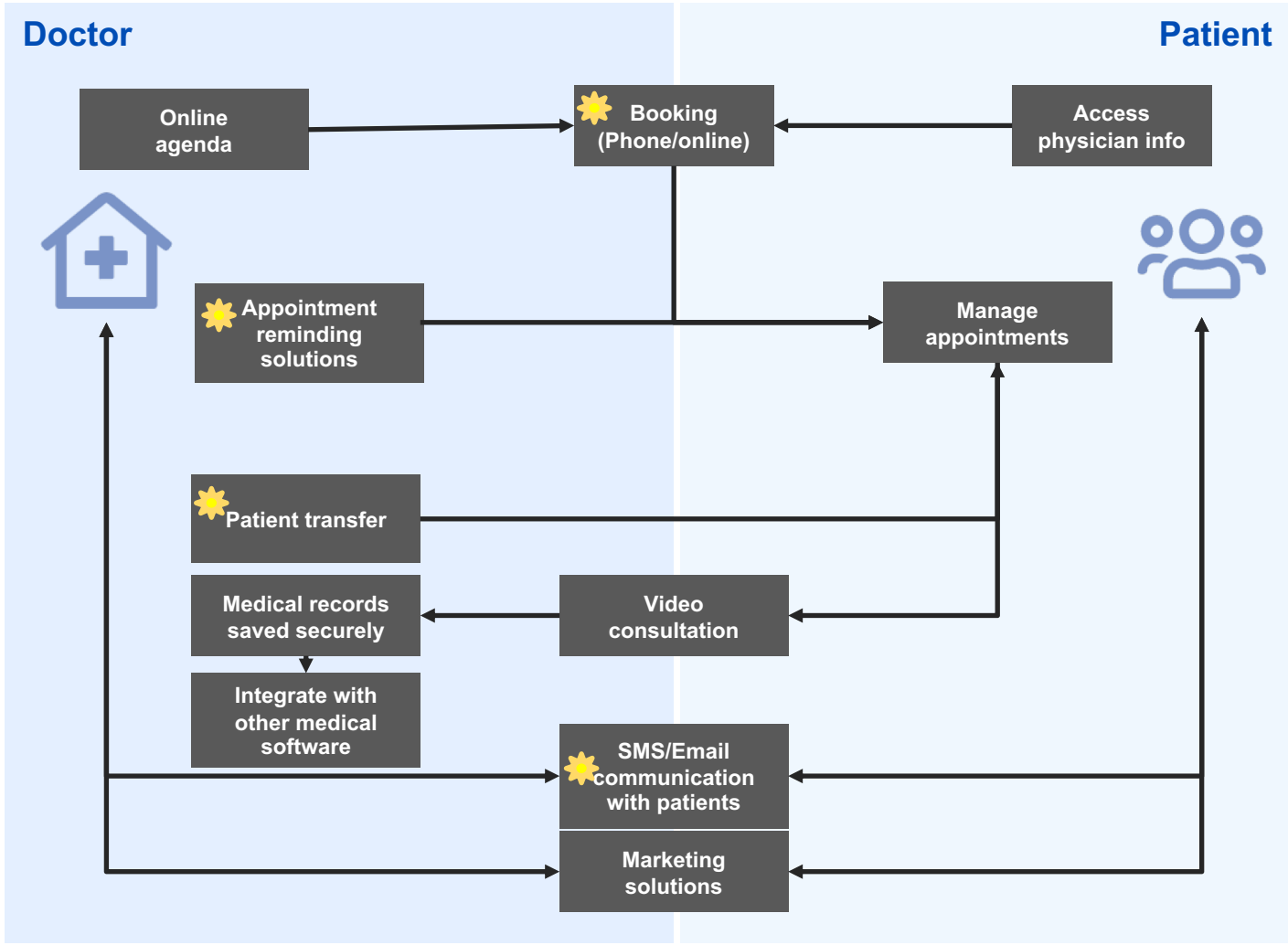
Technology compatible with other medical software
Cloud-based doctor-centric technology connected to hospital info systems, practice management software

Potentials for AI Integration

Analyze patient photo during booking
Collect initial patient lesion image, triage and alter availability based on condition severity

Better informed patient transfer
Attach initial patient photos with transfer patient profile, making patient info more available for later physician

Smart patient follow-up based on prior behavior
Communicate with patients based on previous behavior, e.g. likelihood of missing appointment, health condition etc.



Zava

Telemedicine consultation (non-vid), prescription delivery through partners or in-house pharmacy

Core competency

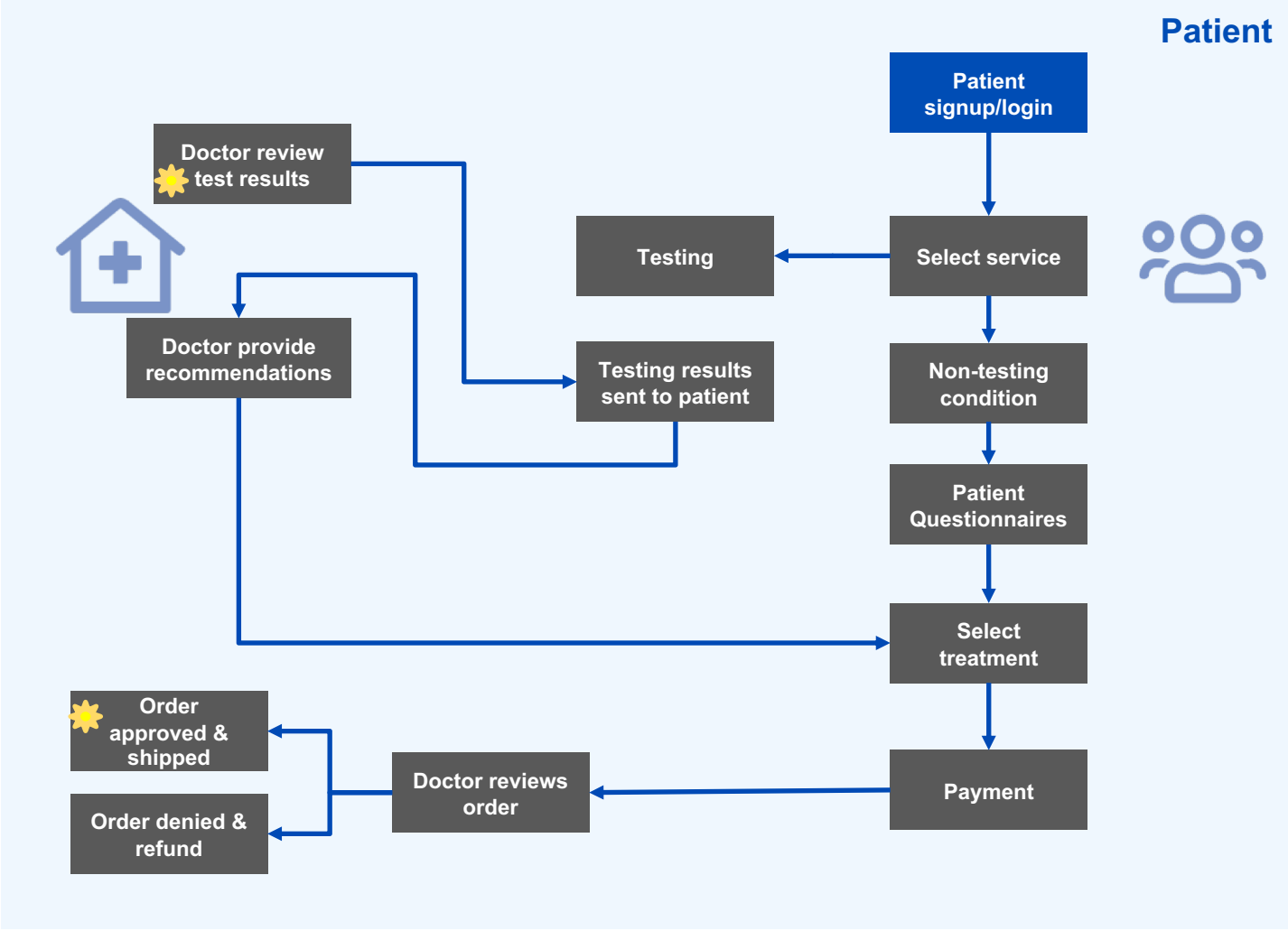
Scale
Europe's largest digital healthcare companies treating patients from the UK, France, Germany etc. 3 million paid consultations since its launch

"Discreet and convenient" alternative to an in-person doctor visit
Provide reliable and convenient access to a qualified clinical team, via written communication, avoiding embarrassing face-to-face consultations

Potentials for AI Integration

Analyze patient photo during booking
Collect initial patient lesion image, triage based on condition severity to ultimate doctor utilization

Smart patient follow-up to create stickiness
Follow up with patients based on previous condition, recommend other services to generate recurring revenue



K health

AI-assisted free symptom checking app with optional paid telehealth features

Technology

AI symptom check
Natural language processing and machine learning to apply health data in new ways

Extensive data for model training
Use 15+ years of EMR data of 2m patients from Maccabi Health Services in Israel and 400m+ doctor notes for model training

Potentials for AI Integration

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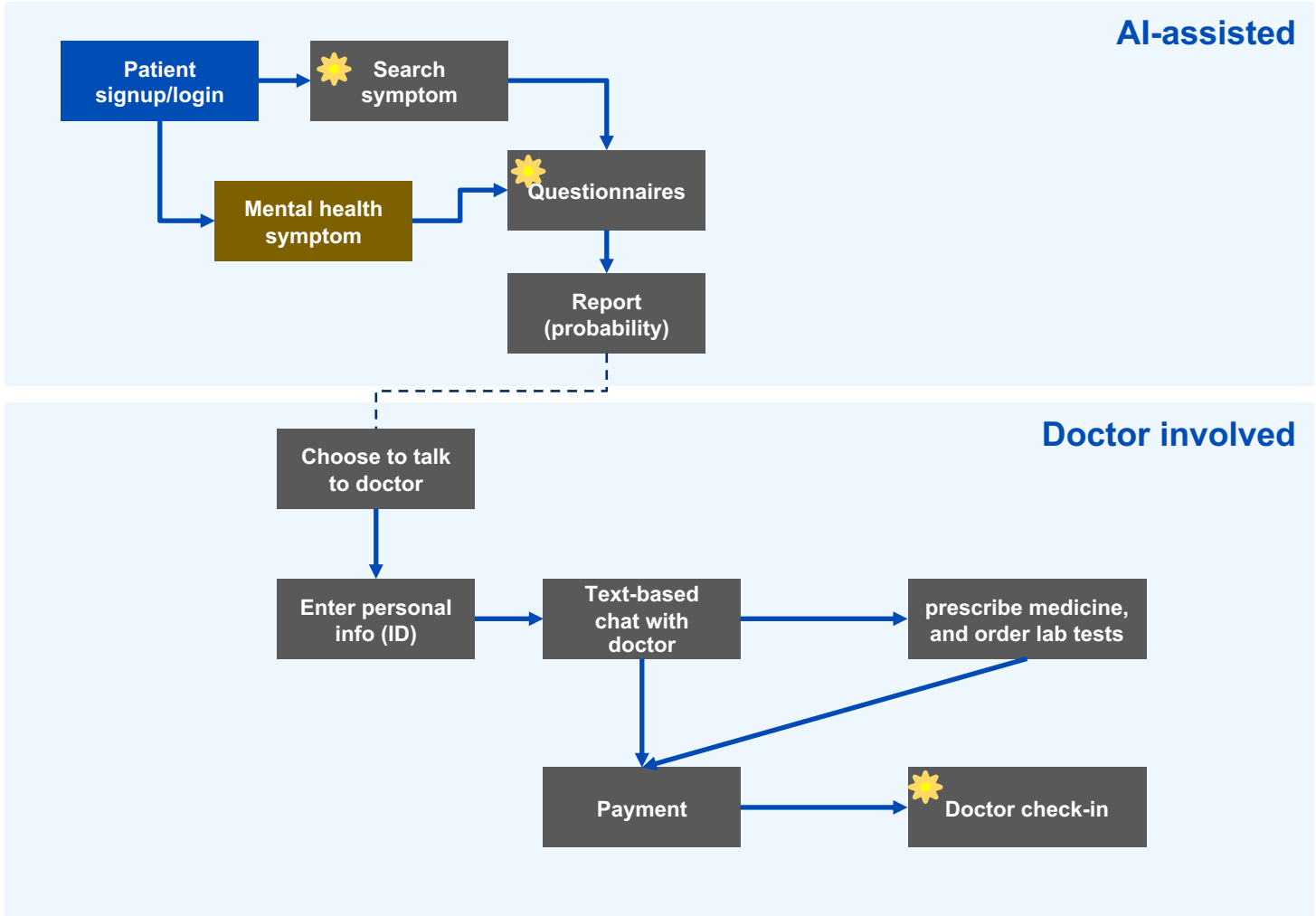


Halodoc

Mobile application that connects patients with doctors, insurance, labs, and pharmacies

Core value prop/ Technology

Key pain points solved

Long commute times to visit doctors due to congestion in urban areas, and lack of doctors in rural areas

Feature engineering and NLP to assess consultation quality

Quantitative approach to identify key metrics impacting patient satisfaction, qualitative assessment using NLP

Filter image using AI

Use **AWS Rekognition** to get confidence score of images, combine with internal definition to decide image release/not

Potentials for AI Integration

Analyse patient photo prior to consultation

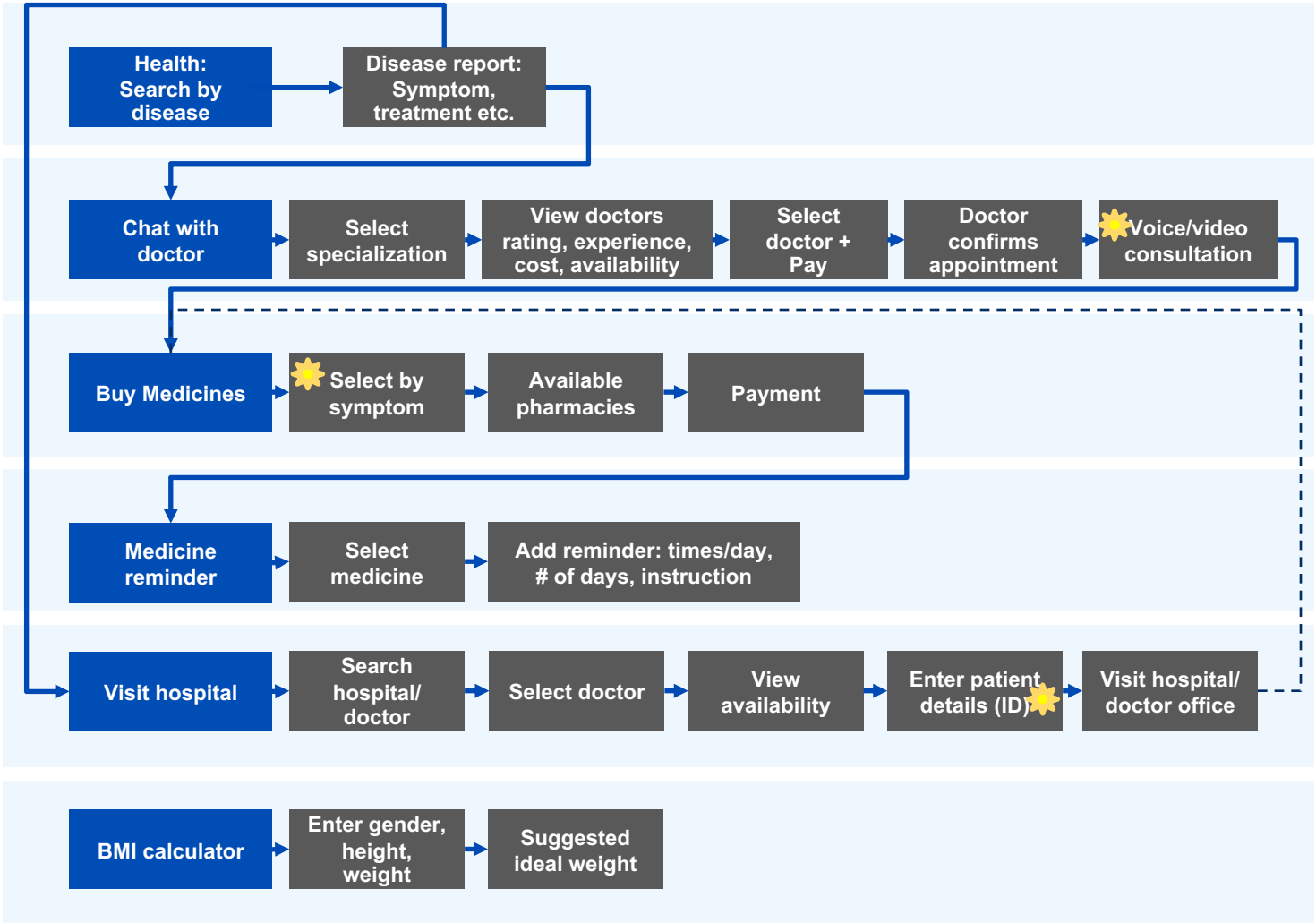
Improve accuracy and efficiency of clinician chat, lower malpractice rate with AI-suggested diagnosis

Vet medicine purchase based on symptom

Ensure patients purchase medicine needed by analyzing lesion picture

Triage based on severity

Prioritize patients with more serious condition when scheduling in-person visits



Galileo Health

provide team-based clinical support virtually and personalized medicine to patients

Core Competency/ Technology

Team-based approach
Clinicians develop more comprehensive, thoughtful and impactful advice for patients.

Limited information on company's technology, based on LinkedIn current employee profiles, Galileo Health does not have any machine learning/AI engineers at the moment

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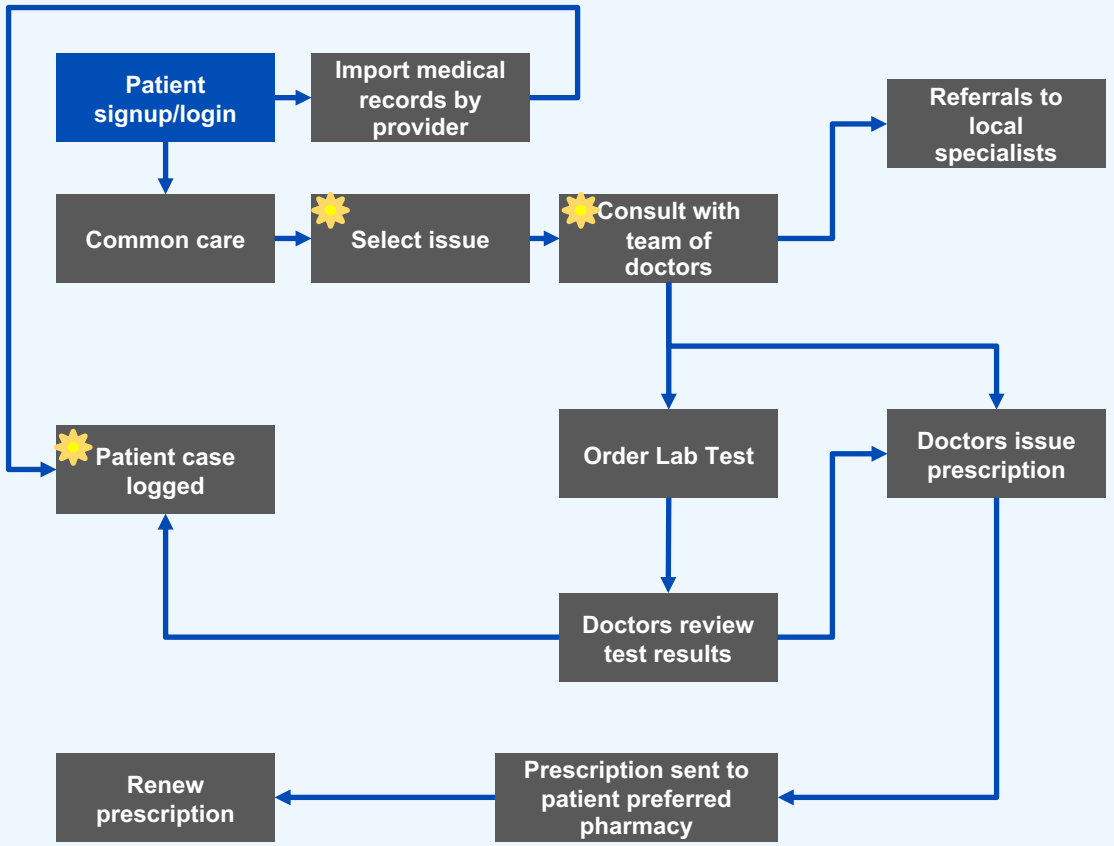

Dr+ on demand

integrated virtual primary care platform with smart, in-network service referrals

Core competency

Import health data from mobile platforms
Get data from Google Fit and Apple CareKit — to full-on data that might come in through connected devices like blood pressure monitors or fitness trackers or stethoscopes

24/7video consultation service
CEO claimed company's board-certified staff can handle 90% of the consultations that happen every day in urgent-care facilities

Potentials for AI Integration

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Improve accuracy and efficiency of clinician chat, lower malpractice rate with AI-suggested diagnosis

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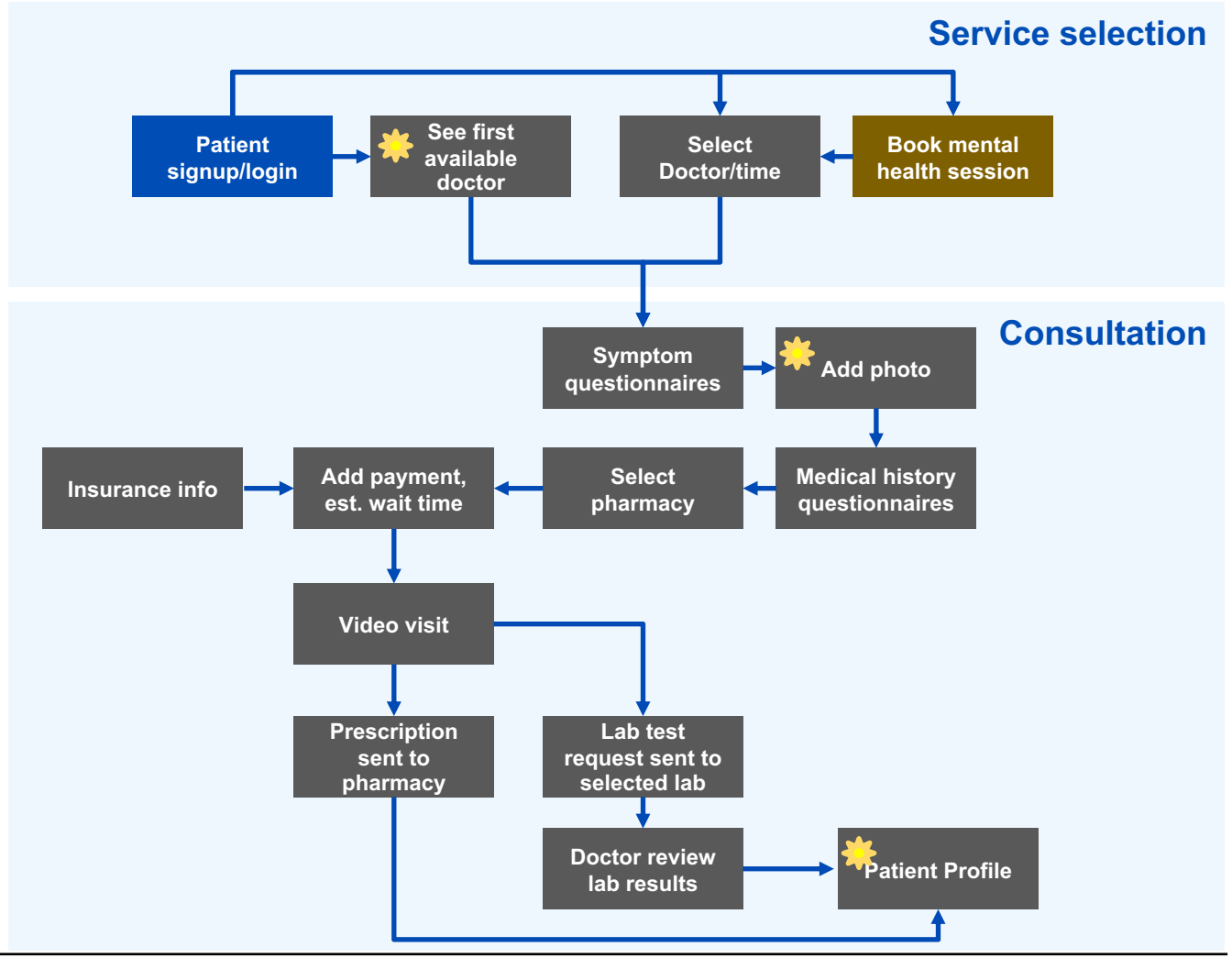
Triage based on severity
Prioritize patients with more serious condition when scheduling first-available visits



KRY

Meet experienced doctors and legitimate psychologists via video, directly on the mobile or tablet

Technology/ core competency

Encrypted video consultations
Enable healthcare professionals to sign in with email account and send 1-time SMS to patient's mobile, patient start video conference by clicking on the link

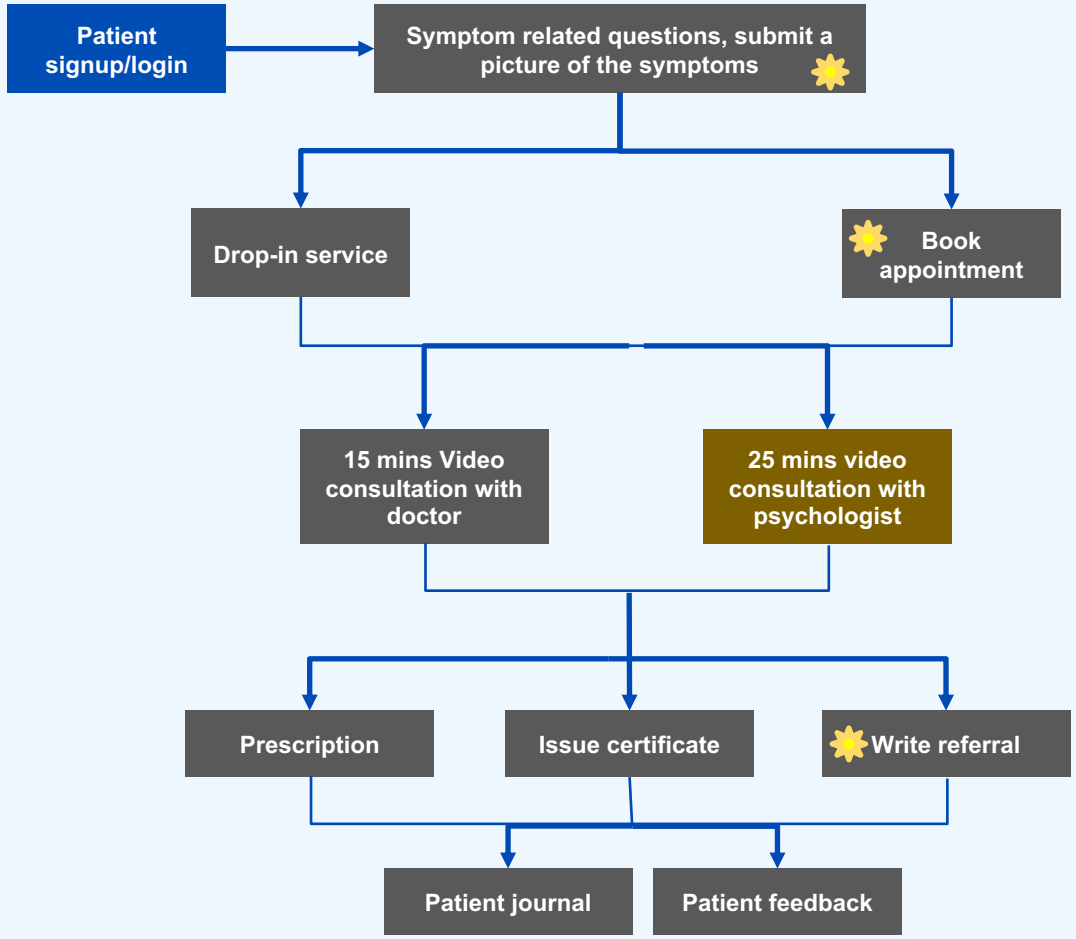
Hire retired clinician
Utilize experienced retired doctors who cannot carry out primary care to meet unmet demand

Potentials for AI Integration

Analyse patient photo prior to consultation
Improve accuracy and efficiency of clinician chat, lower malpractice rate with AI-suggested diagnosis

Triage based on severity
Prioritize patients with more serious condition when scheduling in-person visits

Send referral with lesion analysis
Allows primary physicians to share AI analysis of patient lesion when providing referrals



Ada

leading virtual medical and behavioral healthcare provider via mobile app

Core competencies

Algorithm accuracy
Symptom assessment platform attaining almost 90 percent accuracy

Topic driver for AI symptom assessment of AI4H Focus group
Define and establish a globally recognized standardized approach to benchmarking in our particular field

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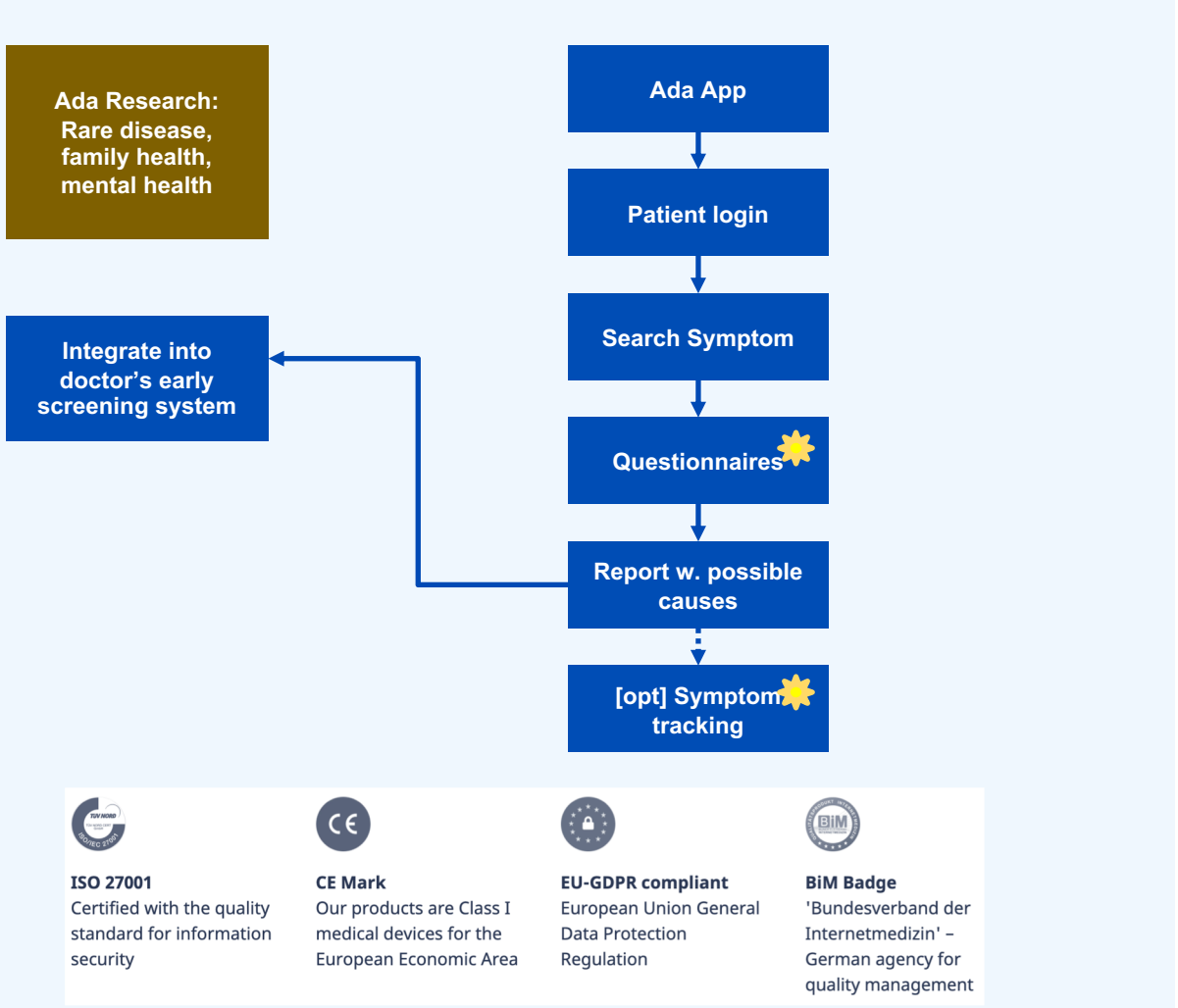


Lyra Health

Work with employers to offer benefits on mental health care

Technology

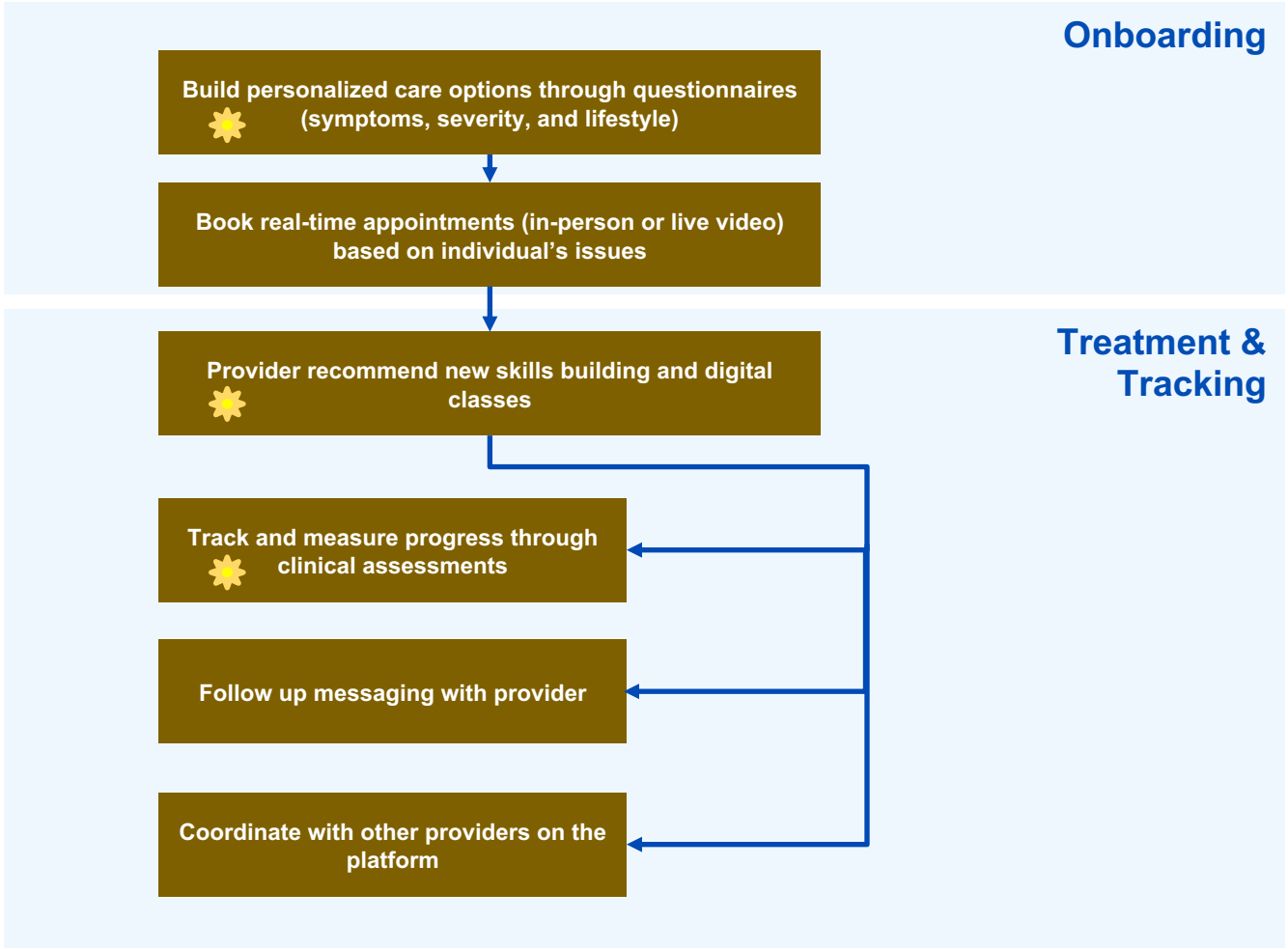
Reliable clinical improvement
Lyra uses validated clinical measures, such as the PHQ-9 and the GAD-7, to assess symptom improvement for anxiety, depression, and other common mental health issues. Focus on on providers use evidence-based treatment

Progress tracking using data
Collects assessment data from patients before, during and after treatment, plot progress graph based on assessment results

Potentials for AI Integration

Analyse patient symptom using AI
Improve accuracy and fit of personal care, recommend better suited therapists and self-care classes

Tailor assessment for patient follow-up
Adapt clinical assessment based on patients' answers, learn about patient's real-time behavior change to improve subsequent treatments



Buoy

Web-based symptom checker chatbot and digital triaging solution using AI technology

Core competency/Technology

Patient triaging

Clearing patient confusion and reducing unnecessary ER/urgent care visits have big implications as healthcare costs continue to rise,

Better accuracy

Buoy was right 92 percent of the time, compared to WebMD's 56 percent, Healthline's 53 percent and Mayo Clinic's 38 percent

Potentials for AI Integration

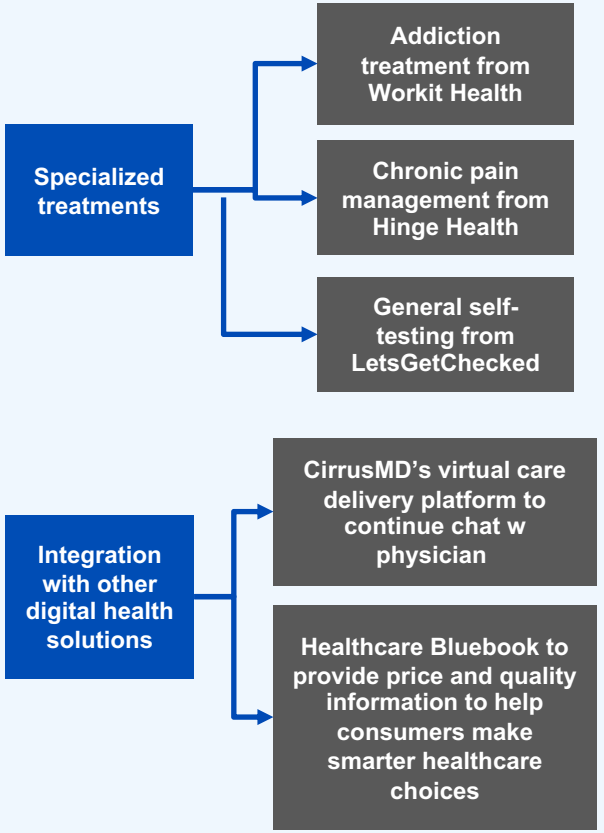
AI-assisted diagnosis based on patient photo

Improve accuracy and efficiency of patient questionnaires, lower malpractice rate with AI-suggested diagnosis

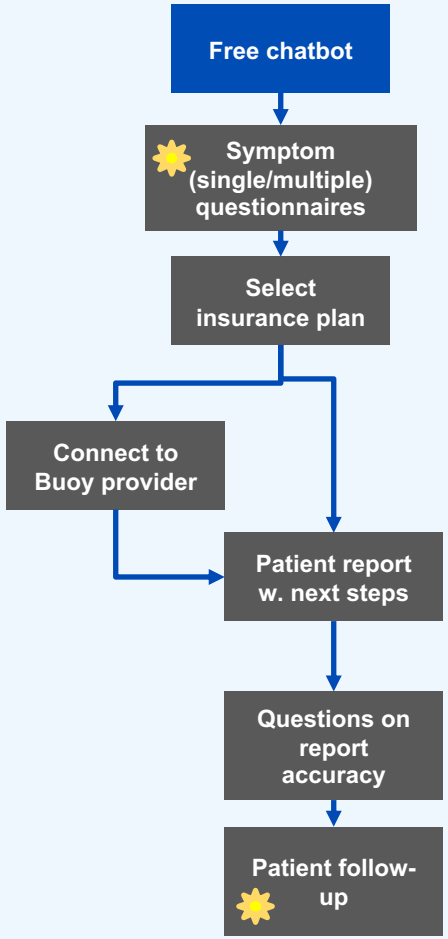
Easy patient follow-up

Allows patients to upload new lesion photo and follow up with physicians

2B- corporate benefits programs



2C



98point6

Mobile app offers on-demand text-based primary care to users

Technology

AI-assisted triaging
Automated Assistant solicits health questions and information about patient symptoms, all of which it relays to licensed, board-certified medical professionals.

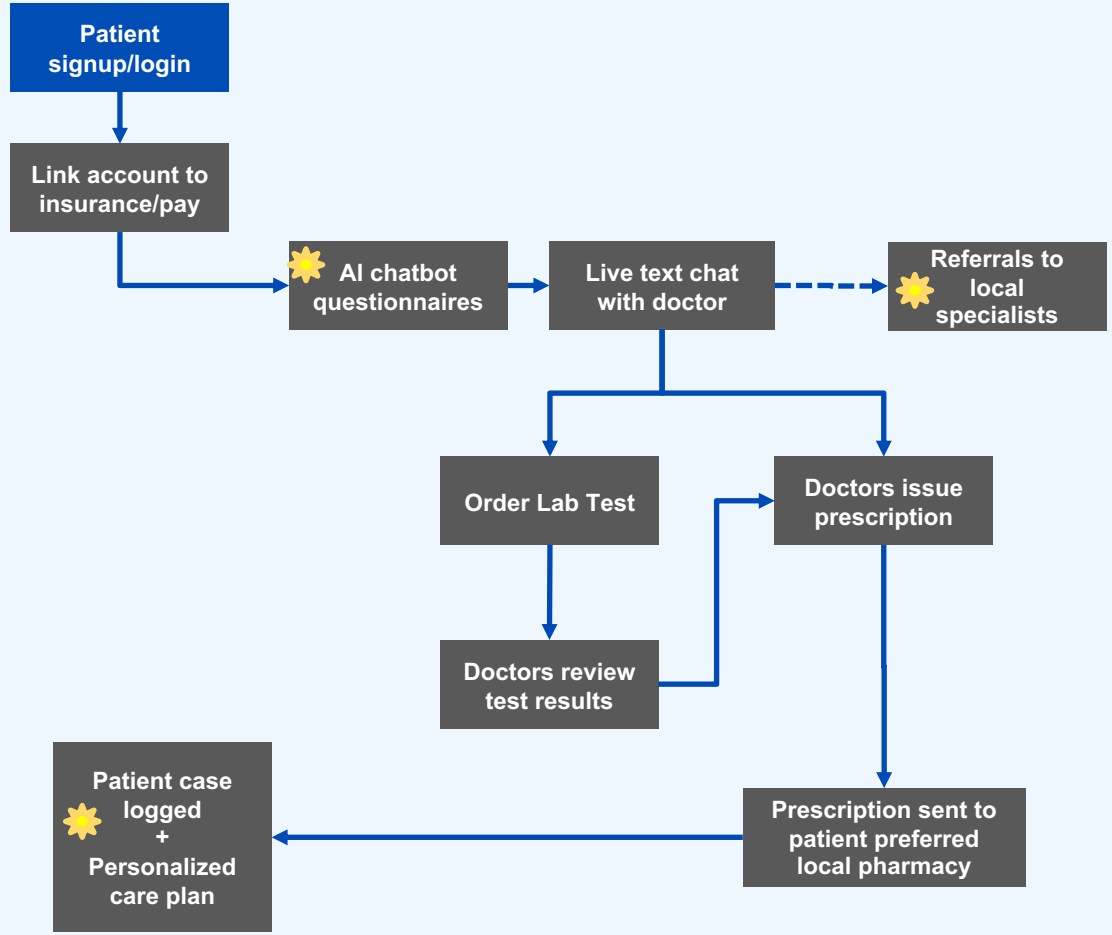
Combine AI and NLP
Chatbot is trained to ask scenario-based questions and consolidate the most relevant patient info prior to physician live chat

On-demand text chat
98point6 uses secure messaging tool, allows texting, exchanging photos and videos, referral to in-person visit in case of complicated cases

Potentials for AI Integration

Analyse patient photo prior to consultation
Improve accuracy and efficiency of chatbot and clinical chat, lower malpractice rate with AI-suggested diagnosis; forward results to specialist in case of referral for triaging

Easy patient follow-up
Allows patients to upload new lesion photo and follow up with physicians



Amwell

Telehealth solution for both providers and patients including apps, andweb-based platforms

Technology

EMR/EHR Integration
Integrating telehealth with the EHR allows providers to embed video visits into their existing workflows and gives patients access to care from their preferred patient portal.

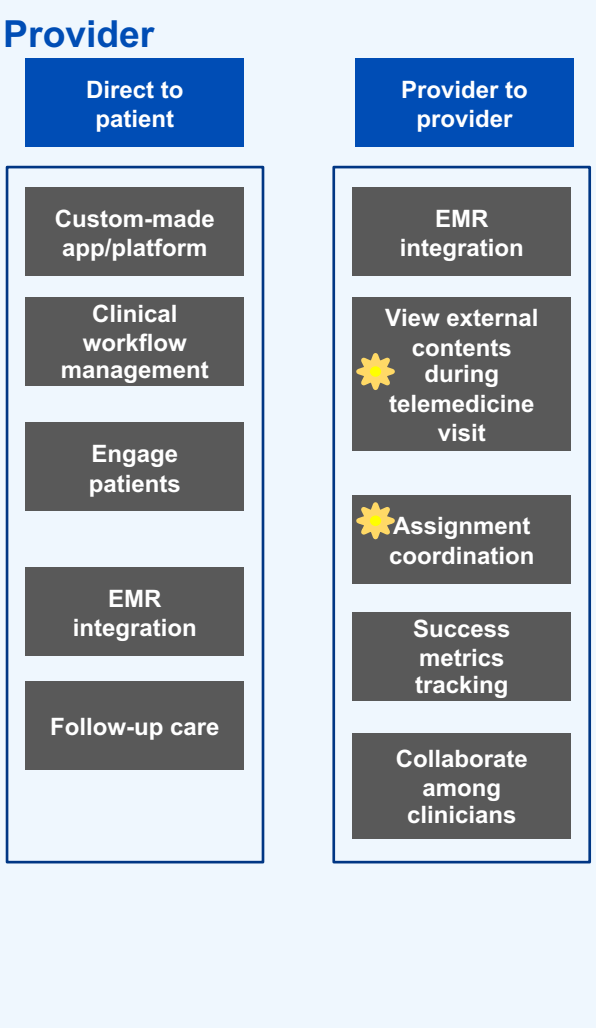
FDA-approved telemedicine Carts
Leverage FDA-registered carts with far-end camera control, seamless peripheral integration and remote fleet monitoring.

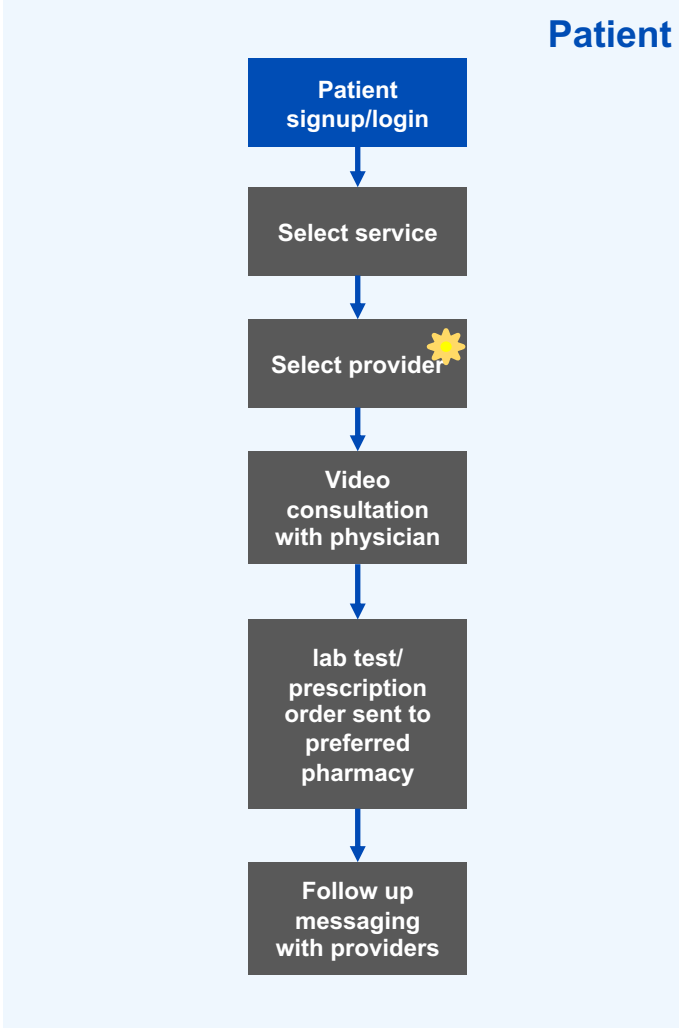
Patient medical records sharing
Enables physicians review content from external sources during a telemedicine encounter, such as PACs imaging and exam devices..

Potentials for AI Integration

Patient triaging
Triage based on symptom questionnaires or lesion photo, reduce unnecessary demand for specialist providers

Send referral with AI-assisted diagnosis
Allows physicians to share AI diagnosis of patient condition when providing referrals or transfers





MDLIVE

On-demand access to doctors and pediatricians via secure online video, phone, or MDLive App

Technology

1st usage of AI chatbot - Sophie
creating a tailored, conversational registration process for each individual. Reducing costs, coordinating care more effectively, enhancing the experience between patient and physician and improving the overall consumer experience.

Holistic digital front-door for healthcare businesses
Provide a ccomprehensive, end-to-end virtual care solution, through secure platforms that ensure patients to have immediate, convenient access to one of the nation's largest network of telehealth providers via voice, video and mobile devices.

Potentials for AI Integration

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Improve accuracy and efficiency of clinician chat, lower malpractice rate with AI-suggested diagnosis

Send referral with AI-assisted diagnosis
Allows physicians to share AI diagnosis of patient condition when providing referrals or transfers

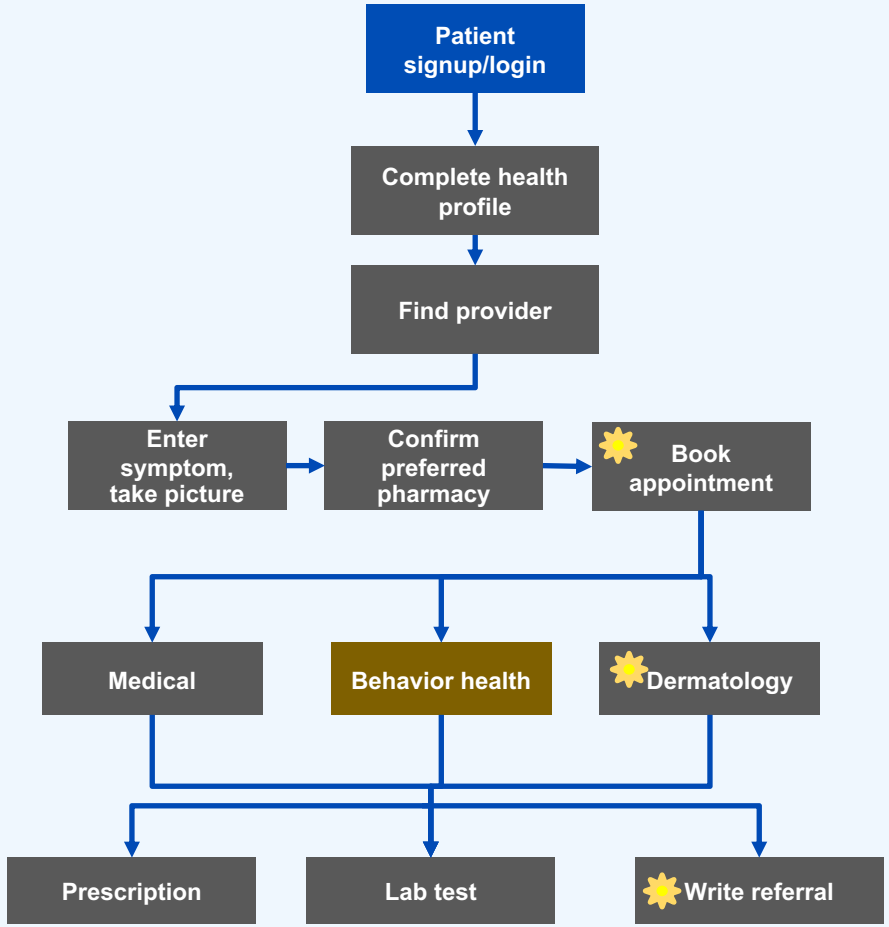
Triage based on severity
Prioritize patients with more serious condition when scheduling first-available visits

Business

Optimize provider schedules to allow top-of-license work

AI-powered Sophie chatbot makes signup fast and easy

Patient



Key Takeaways - Summary

	Geo Focus	AI ?	Physician consultation	Business model	Funding 2020
Babylon	Europe/US	Yes - chatbot	Yes - video	2C	
Doctolib	Europe	No	Yes - video	2B + 2C	
Zava	Europe	No	Text only	2C	
K health	US	Yes - chatbot	Text only	2C	48M in Feb
Halodoc	Asia	Yes - AWS Rekognition	Yes - video	2C	
Galileo	US	No	Text only	2C	
Dr+ on demand	US	No	Yes - video	2C	
KRY	Europe/US	No	Yes - video	2C	
Ada	Europe/US	Yes - chatbot	No - in the US	2C	
Lyra	US	No	Yes - video	2B	75M in March
Buoy	US	Yes - chatbot	No	2B + 2C	
98point6	US	Yes - chatbot	Text only	2C	43M in April
Amwell (American well)	US	No	Yes - video	2B + 2C	
MDLIVE	US	Yes - chatbot	Yes - video	2B + 2C	194M in May

Key Takeaways

Pandemic has accelerated telemedicine with policy changes, there're a few large VC investments into the telehealth space recently

About half of the providers use AI in patient triaging, but only Halodoc uses AI (AWS Rekognition) for image screening. Halodoc has a few blog posts w engineering contents which is very rare among telehealth providers

Every provider has dedicated COVID19 response page, virtual screening has become increasing popular and attracted support from government agencies

A few value propositions for AI integration:
- Reduce strain on healthcare resources
- Enable easier health trend monitoring
- Reduce costs, coordinating care more effectively
- Improve user experience by creating a tailored, conversational registration process
- Help strike a balance between human interaction and technology, creating a more personalized experience for consumers

Potential areas for AI integration:
- Digital front door – AI chatbot and image screening for patient triaging
- Package AI-diagnosis with patient profile during referrals
- Analyze patient condition to improve accuracy of physician diagnosis
- Easier patient follow-up with AI assistant