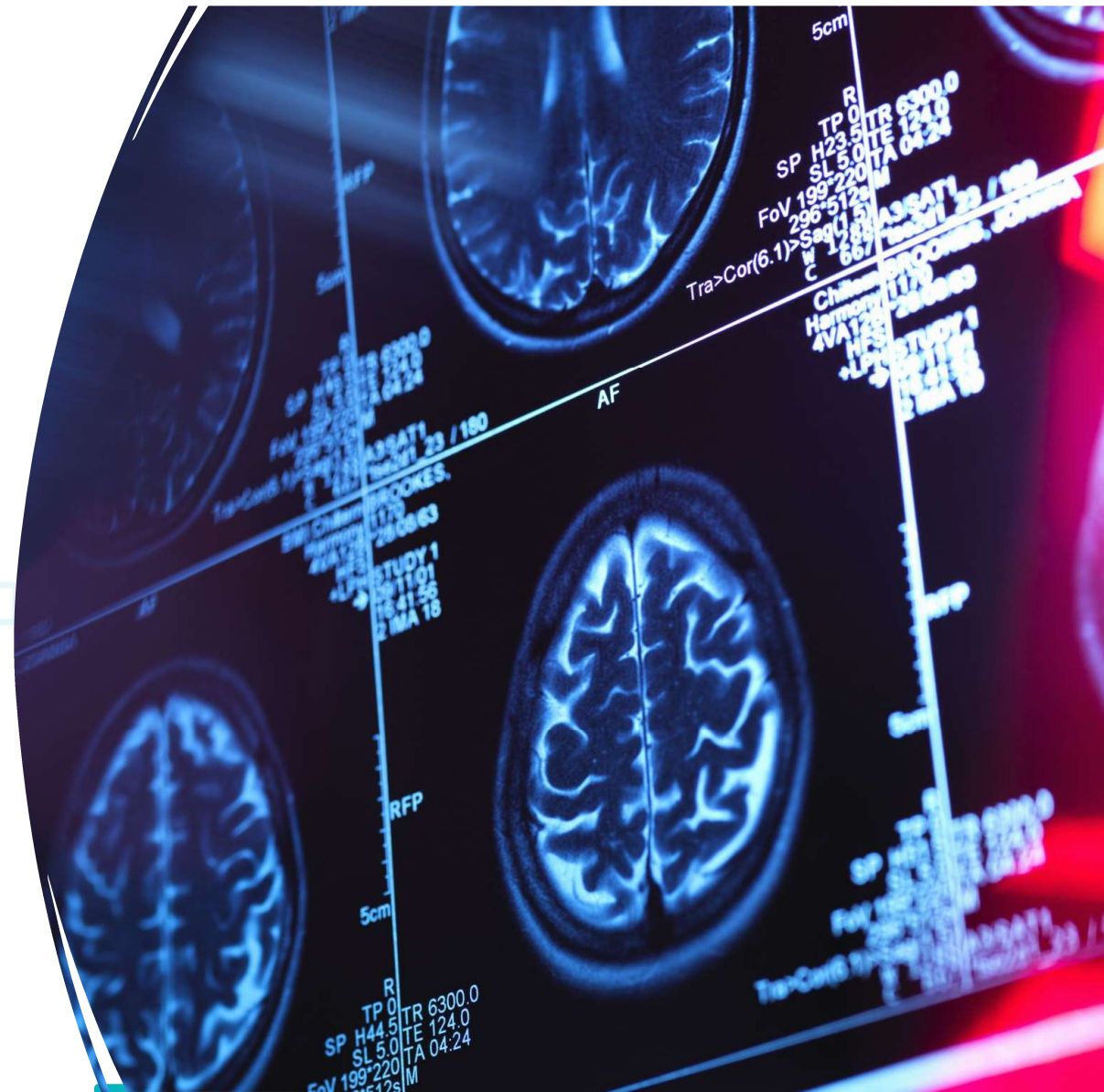# Telemedicine – Challenges and Opportunies

Team 5

- Ho Thieu Minh
- Ye Yint Moe
- Clement Lim Vee Lum
- Simao Zainal Ramos
- Aiman Ismail

Telehealth

disease prevention, digital health promotion and curative care

TELEMEDICINE
remote clinical services that focus on a curative aspect of care

CONNECTED HEALTH
a healthcare delivery model where telehealth and telemedicine technologies help to provide health services remotely.
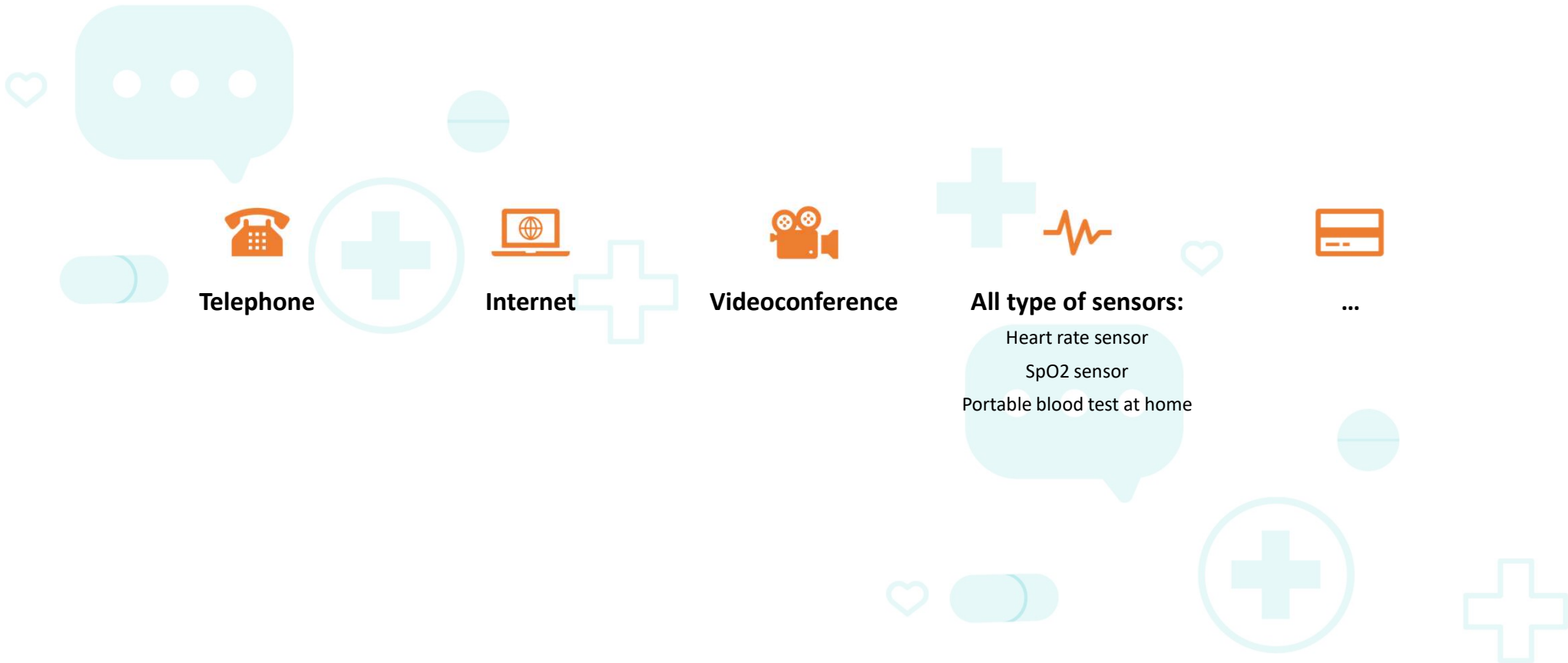
History of Telemedicine

- Telemedicine exists since the invention of telephone (1876)
- First found on newspaper in The Lancet (1879)

The Lancet - 1879

- *"The Yankees are rapidly finding out the benefits of the telephone. A newly made grandmamma, we are told, was recently awakened by the bell at midnight, and told by her inexperienced daughter, "Baby has the croup. What shall I do with it?" Grandmamma replied she would call the family doctor, and would be there in a minute. Grandmamma woke the doctor and told him the terrible news. He in turn asked to be put in telephonic communication with the anxious mamma. "Lift the child to the telephone, and let me hear it cough," he commands. The child is lifted, and it coughs. "That's not the croup," he declares, and declines to leave his house on such small matters. He advises grandmamma also to stay in bed; and, all anxiety quieted, the trio settle down happy for the night"*
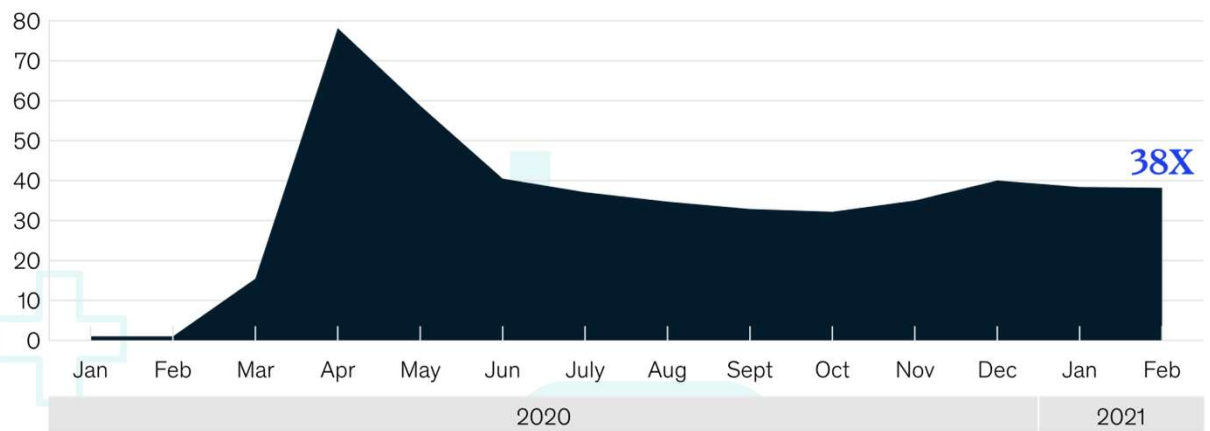
Invention that support telemedicine

Telephone

Internet

Videoconference

All type of sensors:

Heart rate sensor

SpO2 sensor

Portable blood test at home

...

Recent progress

Growth in telehealth usage peaked during April 2020 but has since stabilized.

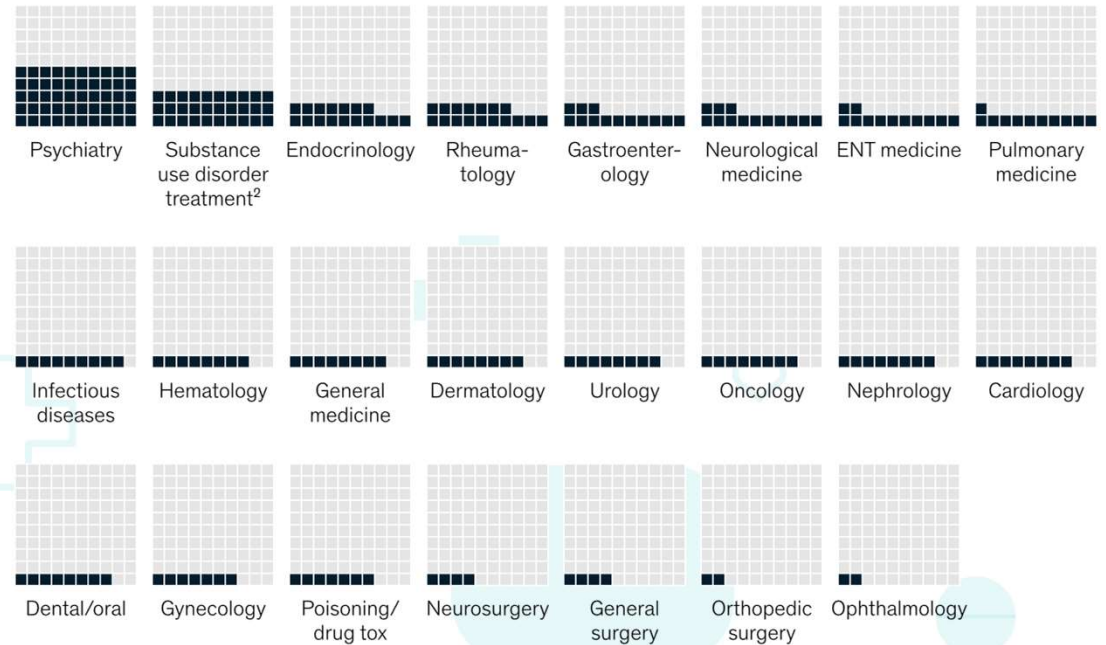Telehealth claims volumes, compared to pre-Covid-19 levels (February 2020 = 1)[1]

[1] Includes cardiology, dental/oral, dermatology, endocrinology, ENT medicine, gastroenterology, general medicine, general surgery, gynecology, hematology, infectious diseases, neonatal, nephrology, neurological medicine, neurosurgery, oncology, ophthalmology, orthopedic surgery, poisoning/drug tox./comp. of TX, psychiatry, pulmonary medicine, rheumatology, substance use disorder treatment, urology. Also includes only evaluation and management visits; excludes emergency department, hospital inpatient, and physiatry inpatient claims; excludes certain low-volume specialties.
Source: Compile database; McKinsey analysis

McKinsey & Company

Type of telemedicine treatment

Substantial variation exists in share of telehealth claims across specialities.

Share of telehealth of outpatient and office visit claims by specialty (February 2021[1]), %

Psychiatry · Substance use disorder treatment[2] · Endocrinology · Rheuma-tology · Gastroenter-ology · Neurological medicine · ENT medicine · Pulmonary medicine

Infectious diseases · Hematology · General medicine · Dermatology · Urology · Oncology · Nephrology · Cardiology

Dental/oral · Gynecology · Poisoning/drug tox · Neurosurgery · General surgery · Orthopedic surgery · Ophthalmology

[1] Includes only evaluation and management claims; excludes emergency department, hospital inpatient, and physiatry inpatient claims; excludes certain low-volume specialties.
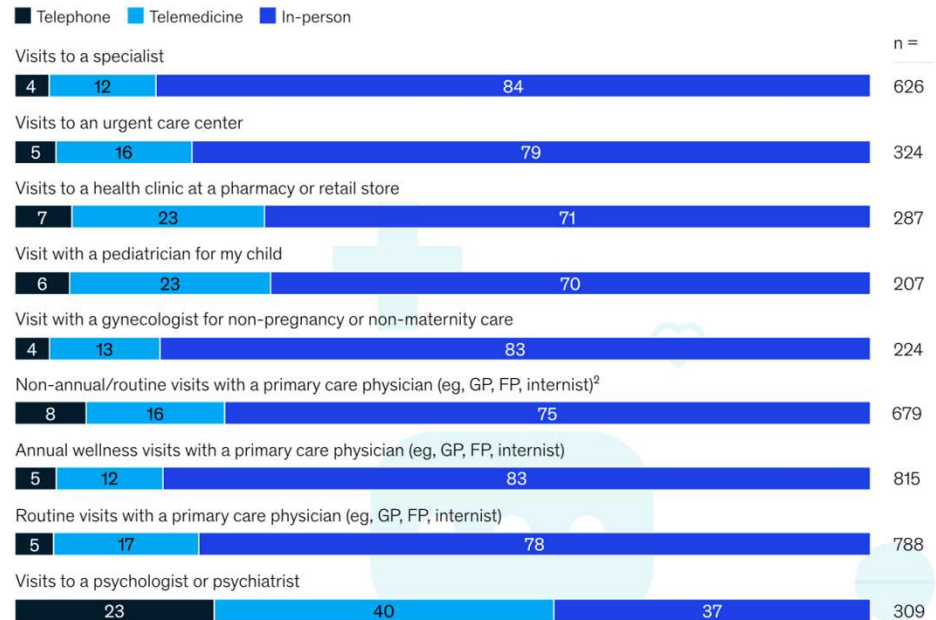[2] Also includes addiction medicine and addiction treatment.
Source: Compile database; "Telehealth: A quarter-trillion-dollar post-COVID-19 reality?" May 2020, McKinsey.com; McKinsey analysis

McKinsey & Company

Recent visit by type

Most recent care received utilized telemedicine, with some moderate increases since January.

Modality of most recent appointment by setting, current as of June 14, 2021

Respondents who reported receiving care in the specified setting (sample size varies by row),[1] %

■ Telephone ■ Telemedicine ■ In-person

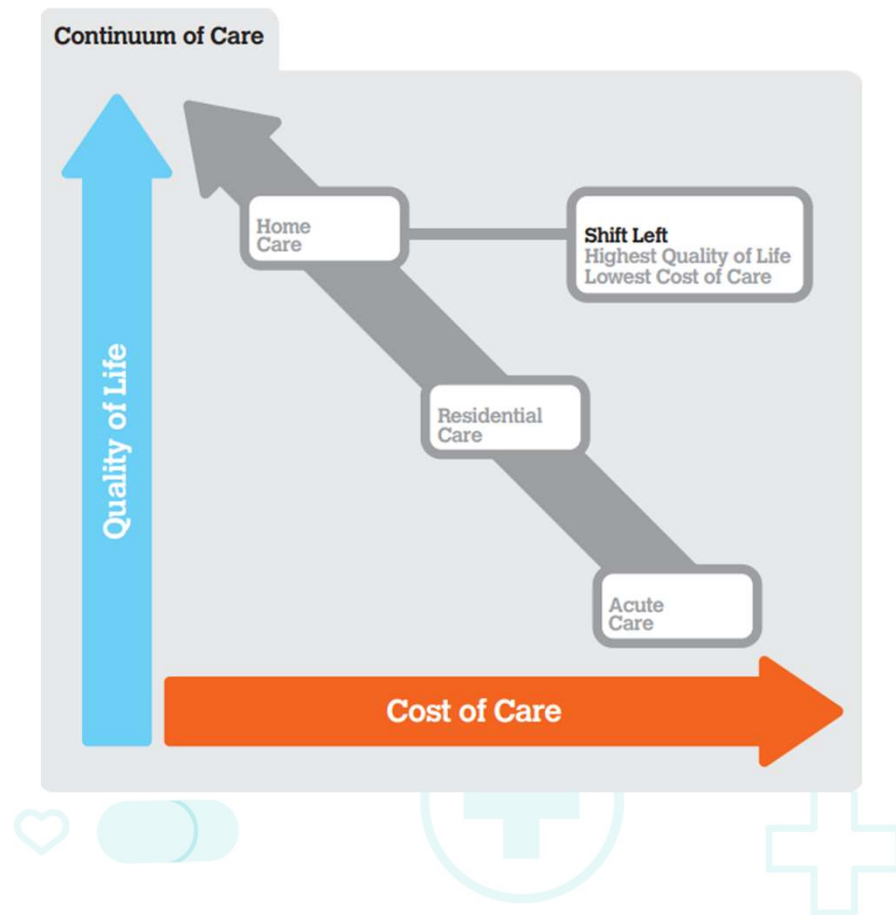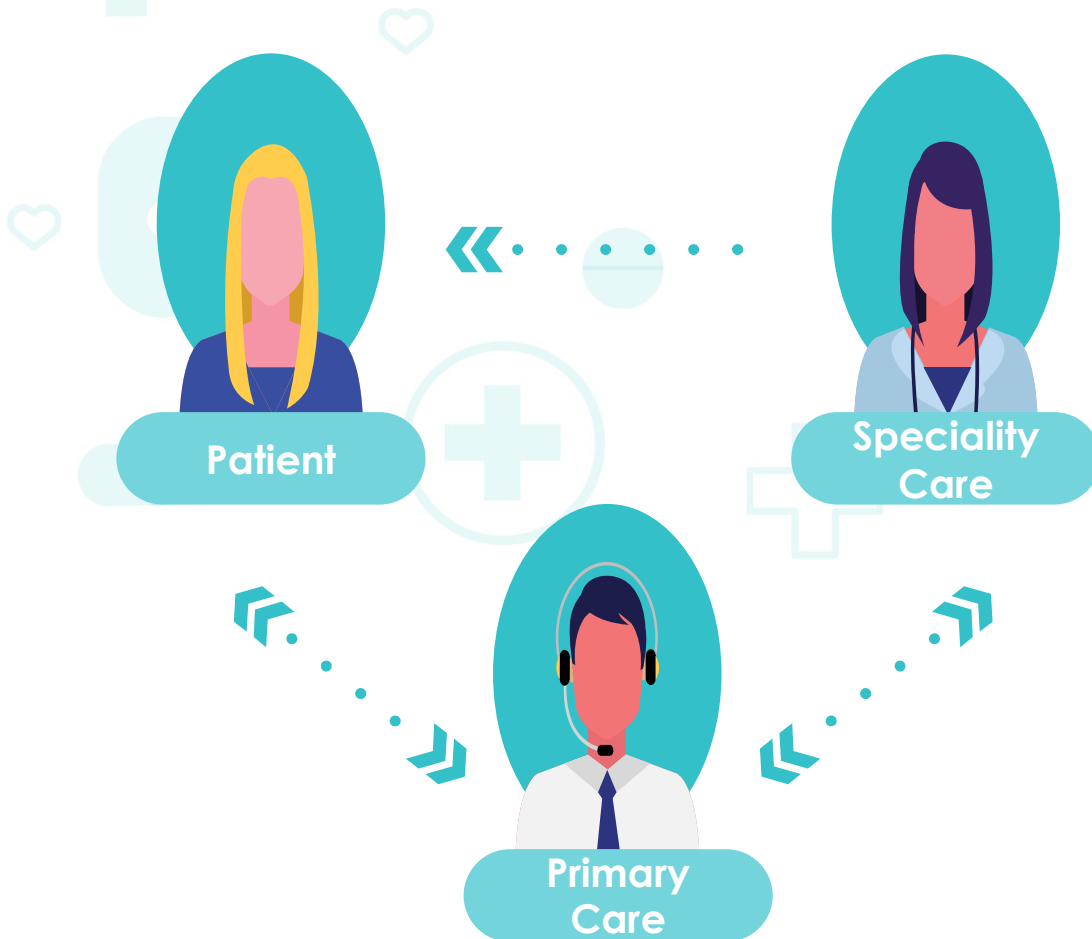| Setting	Telephone	Telemedicine	In-person	n =
Visits to a specialist	4	12	84	626
Visits to an urgent care center	5	16	79	324
Visits to a health clinic at a pharmacy or retail store	7	23	71	287
Visit with a pediatrician for my child	6	23	70	207
Visit with a gynecologist for non-pregnancy or non-maternity care	4	13	83	224
Non-annual/routine visits with a primary care physician (eg, GP, FP, internist)[2]	8	16	75	679
Annual wellness visits with a primary care physician (eg, GP, FP, internist)	5	12	83	815
Routine visits with a primary care physician (eg, GP, FP, internist)	5	17	78	788
Visits to a psychologist or psychiatrist	23	40	37	309

APPT1. For each of the following types of care below, indicate whether your most recent appointment was either at an in-person appointment, or an online/video visit with a physician (eg, Doctor on Demand, Skype, FaceTime); also called telemedicine, or a telephone (voice call) appointment.
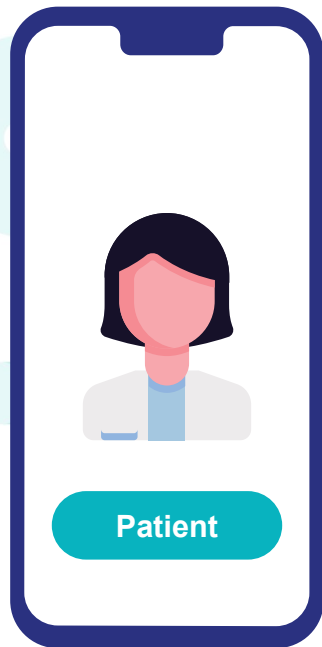[1] Figures may not sum to 100%, because of rounding.
[2] FP, family physician; GP, general practitioner.
Source: McKinsey COVID-19 Consumer Survey 1/15/2021, 6/14/2021

McKinsey & Company

Telemedicine Model

Patient

Speciality Care

Primary Care

Continuum of Care

Quality of Life

Home Care

Shift Left
Highest Quality of Life
Lowest Cost of Care

Residential Care

Acute Care

Cost of Care

Telemedicine benefits

Patient

Promotes individuals long term well-being and independence. The care management is patient-centric and is delivered at comfort of their home. Less travel and disruption for routine check-ups
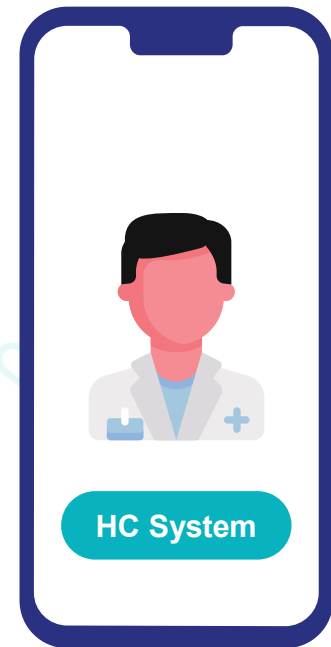
Primary Care

Effective scheduling and virtual consultation. Reduction in unnecessary GP visits. Promotes proactive case management and early intervention and prevention

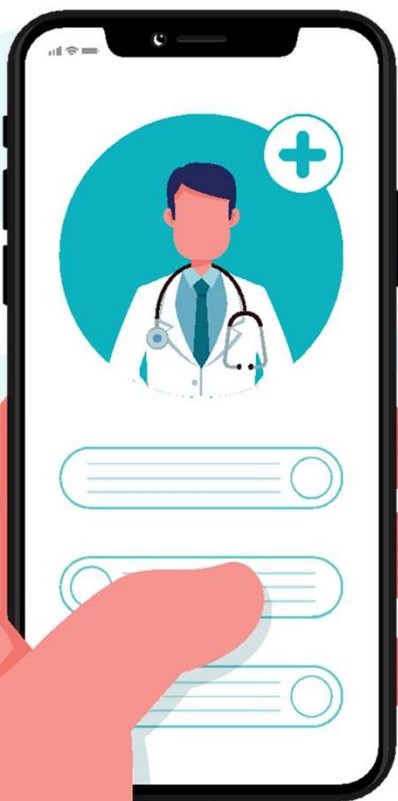**Specialty Care**
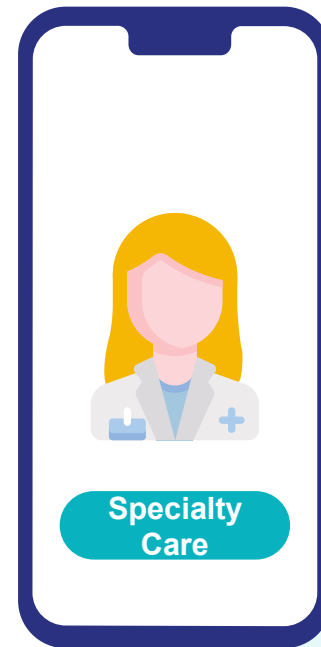
Improves the working lives of the medical staff and is more cost-effective. Reduction in non-elective admissions, A&E visits and readmission rates

HC System

Provides an evidence base for future care and technology needs and is clinically more effective. Cost saving across the health economy

Telemedicine usecases

e-consultation
e-prescription

Building a primary care capacity and using telehealth as an additional sales channel. Tele-mentoring connects the primary care to speciality care and can provide real-time expert advice.

Power Medical Education

Patient education and better awareness, peer-to-peer learning and sharing best practises. It also delivers medical education and medical seminars for targeted HCP/HCOs groups

Reduce patient's financial burden

Collaborate with innovative payment vendors to develop plans using consumer and payment data, providing different kinds of insurance products through online to reduce the financial burden on patients during diagnosis, treatment and follow-ups stages.
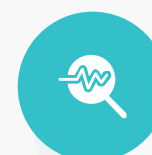
Remote Monitoring

Remote patient monitoring using devices and sensors to remotely collect and send data to a remote diagnostic testing facility for interpretation. Palliative care (Oncology) could be augmented by remote intervention and identify early symptoms and responds promptly to exacerbations in patient illnesses.

Questions to ask before you start

Whether the disease or **product suitable** for telemedicine?

Whether the telemedicine **cost is affordable to patient and justified for HCP**s?

Whether anonymized **DATA** can be returned and used for **INSIGHT**?

Understand perspectives from all parties and try to reach a multi-win result

- Platform creditability
- HCP accountability
- Prescription renewal efficiency
- Product authenticity
- Delivery reliability and speed

DATA/ INSIGHT

- Platform creditability
- Telemedicine platform usability
- Patient quantity and quality
- Tele-consultation effectiveness
- Workload-welfare balance

- Resource and collaboration suitability
- HCP quantity and quality/ Patient traffic
- Product supply sustainability and authenticity
- Platform data documentation
- Logistic capability

Digital Health Literacy Awareness
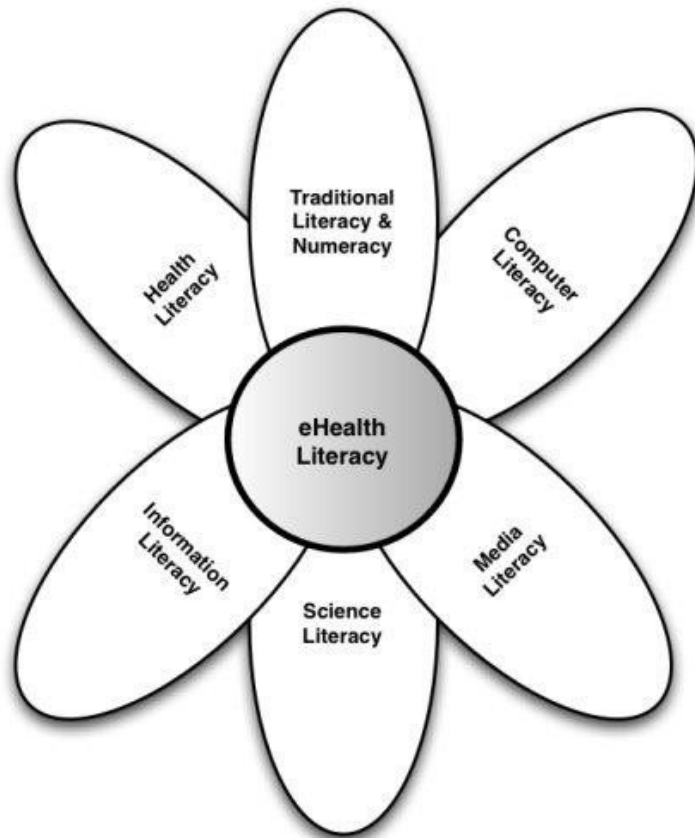
- **Digital health literacy**: 'the ability to seek, find, understand, and appraise health information from electronic sources and
apply the knowledge gained to addressing or solving a health problem'.

Variables influencing Digital Health Literacy
Age
Health status
Educational background
Digital literacy skills
Motivation for seeking information
...

Digital Health Literacy Example

System demands and complexity

Health Literacy

Individual, family community capacities
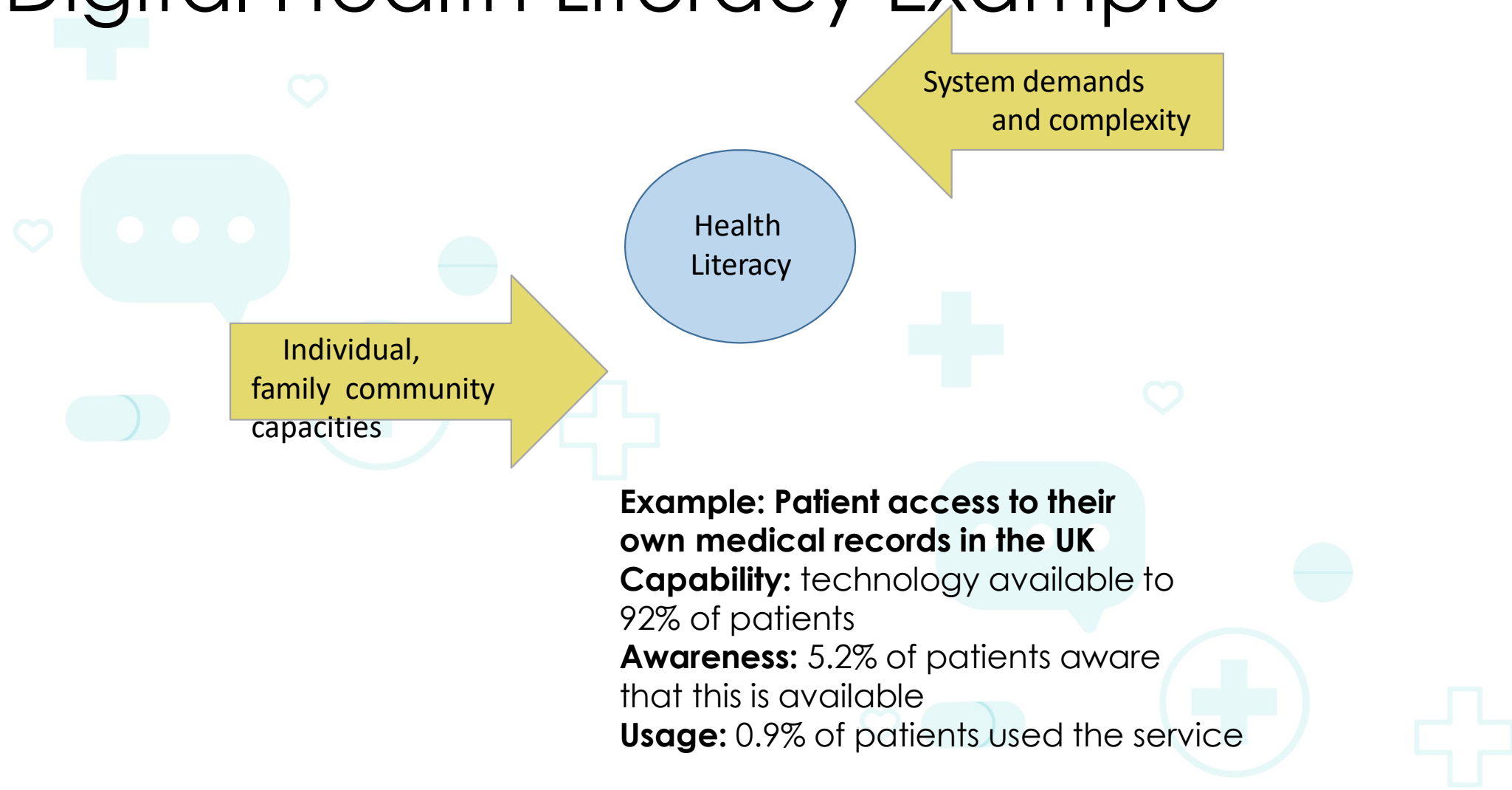
Example: Patient access to their own medical records in the UK
Capability: technology available to 92% of patients
Awareness: 5.2% of patients aware that this is available
Usage: 0.9% of patients used the service

Raising Digital Health Literacy Awareness

P2I

G2I

I2I

- **Professionals-to-Individuals (P2I)** : Healthcare professionals can educate the use of digital health records during receptions. Professionals should explain the implications of these technologies to improve the healthcare system widely.

- **Government-to-Individuals (G2I):** The government should think about being transparent with the people in terms of creating a proper informative infrastructure: informing and updating individuals on any guidelines, regulations and national strategies that are linked with adoption of healthcare and IT systems.

- **Individuals-to-Individuals (I2I):** Experience exchanging platforms (social media, blogs and conferences) are great media to exchange information and experiences with other individuals.

Teleconsultations have become an essential tool during the pandemic

- It has become a growing trend as digital transformation continues penetrating the healthcare industry.

- In fact, it is also becoming an increasingly popular alternative to traditional health care.

- This transformation is changing the lives of many people with many patient's recounting convenience as a huge benefit from online doctor consultations.

- While many are optimistic about the potential of teleconsultation and telemedicine, others in the industry still have some concerns.

Limited physical examination poses a challenge

- Although teleconsultations can be very effective for many minor conditions, physicians may not feel comfortable conducting an examination over video chat. Some patients may also see this as a reason to choose in-person visit over virtual appointments.

- If a patient leaves out an important symptom that might have been noticeable during in-person care, this can compromise treatment.

- Doctors will also be dependent on the screen resolution of the patient's video call, and this will limit what the doctor can examine in order to offer a proper diagnosis.

Regulation limitations

1. Privacy law

a. Article 9 of the Universal Declaration on Bioethics and Human Rights

b. Confidentiality is recognized as a basic human right that should be enjoyed by every human being. Such a principle has been affirmed in Ashworth Security Hospital v MGN Ltd

2. Patients' safety:

a. In Vietnam, despite legal barriers, a lot of doctors have provided free "telephone consultation" including prescription during the pandemic.

b. In Singapore, MOH adopts a risk-based regulatory approach to healthcare services and will focus on licensing direct doctor and/or dentist-led teleconsultations under the upcoming Healthcare Services Act (HCSA) in 2022.

c. In Malaysia, the Telemedicine Act 1997 was enacted to regulate and control the practice of telemedicine and other connect matters however, it has not been revised to today's standard and was never really enforced.

Opportunities and benefits of teleconsultation

1.Prompt 24/7 medical attention that is convenient

- There are no waiting queues, patients can decide on a time convenient for them without having to leave their house to see a doctor.

2.Prevent the spread of infection

- Going to the doctor's office means being around people who may be sick, often in close quarters and this can be particularly dangerous for people with underlying conditions or weak immune systems. Teleconsultations eliminate the risk of picking up an infection at the doctor's office.

3.Better access to a wealth of medical specialists and advice

- Patients can gain access to a wide range of trained and experienced medical professionals to solve their medical issues online.

Conclusion

• Our team believes that the use of Telehealth technologies has the potential to make a positive impact the healthcare lives of patients.

• Telehealth and its various technologies is a new and improving form of healthcare. With more investigation and research on the risks and benefits, healthcare professiona and patients will be more informed and educated on hov Telehealth can change their world of healthcare.

• In conclusion, various technologies can be applied through Telehealth to empower patients to have control over their healthcare, but despite current research, more investigation needs to be completed in order to determine all the possibility's technology has to offer.