COMPONENTS AND EXAMPLES OF
VIRTUAL HEALTH

Synchronous Telehealth

Patient and provider communicate in real-time via electronic devices (e.g., laptop, tablet, smartphone, landline telephone)

- Virginia-based patient with a sinus infection does video consult with a New York physician via Doctor on Demand's telehealth app
- Patient experiencing high blood pressure while visiting Colorado telephones her doctor in Ohio
- Veteran with PTSD consults with psychiatrist at Genoa Telepsychiatry via video call
- Doctor conducts an office-based physical examination, while the audio and video are live-streamed to an Augmedix assistant who produces an electronic health record in real-time
- Surgeons in New York remove the gall bladder of a patient in Paris via robot

Synchronous Autonomous Health

Patient, provider, or both communicate with intelligent machines in real-time

- Singaporean COVID patients interact with "Doctor Covid" chatbot for advice during quarantine
- Patient uses Apple Watch EKG app to determine whether he has atrial fibrillation
- Robotic surgery device ties sutures on its own
- Computer-savvy parent uses Nightscout software to build a remote alert system to monitor her daughter's glucose levels
- Drone carries defibrillator to a heart attack victim on a city street and issues directions for a passer-by to give assistance
- Remote clinic in Rwanda summons drone in the capital to deliver units of AB blood to hemorrhaging mother in childbirth
- A "smart pill" gathers data on a patient and releases drugs into the bloodstream accordingly

Asynchronous Telehealth

Patient and provider communicate back and forth over time via electronic devices (e.g., laptop, tablet, smartphone)

- Primary care provider and patient communicate via email, text, or webform input
- Patient uses AliveCor EKG app to test for atrial fibrillation and emails his test result to a cardiologist who reviews it later in the day
- Patient orders anxiety medication through Lemonaid and physician reviews the order and patient details the next day
- Patient with missing limb sends data via e-NABLE for high school student to manufacture 3D-printed prosthetic

Asynchronous Autonomous Health

patient, provider, or both send data to intelligent machines for later use

- Holter monitor sends cardiac data to provider for later review
- Hospital in Japan sends leukemia patient's records and genome scan to IBM's Watson computer, which then reviews 20 million journal articles and returns a diagnosis 10 minutes later
- Patient uses laptop and smartphone to conduct an eyeglass refraction through Visibly app; then, an ophthalmologist reviews the results later and writes an eyeglass prescription
- Patient's FitBit data is downloaded into her electronic health record
- Patient with depression uses interactive myStrength app to improve mental health and the app learns the patient's behavior over time and adjusts its advice accordingly

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