The Covid-19 Pandemic Accelerates the Transition to Virtual Care

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Kaiser Permanente responded to the Covid-19 pandemic by expanding existing and developing new virtual care modalities. Prior to the pandemic, virtual care consisted primarily of secure e-mail messaging, e-visits, telephone calls, and video visits with the patient's primary care physician, nurse practitioner, or specialty care physician, all linked to the patient's electronic medical record. With the onset of the pandemic, Kaiser Permanente developed a Covid-19 landing page on its main website, launched a patient self-assessment tool, and expanded e-visits to give guidance on Covid-19–related symptoms. By the week of July 12, Kaiser Permanente in Southern California was experiencing 681,000 virtual encounters per week, of which 11% were related to Covid-19 infection. Virtual encounters increased from 38% of total ambulatory visits in February to a peak of 87% at the end of April and then settled to 77% in the middle of July.

Kaiser Permanente has been expanding the scale and scope of its virtual care services for several years, but the process has been accelerated by the Covid-19 pandemic. New virtual care modalities have been developed and the use of all modalities has expanded rapidly, displacing in-person visits that were restricted due to concerns over infection.

This paper describes the expansion of virtual care in the Southern California region of Kaiser Permanente during the period immediately prior to and after the onset of the Covid-19 pandemic, from February 2 to July 18, 2020. Kaiser Permanente is a nonprofit integrated health system with an insurance plan, a network of owned hospitals and clinics, and eight independent and physician-led Permanente Medical Groups, whose physicians provide care to more than 12.4 million Kaiser Permanente members. The Southern California region includes 4.7 million members enrolled through commercial insurance, Medicare Advantage, Medicaid managed care, the California health insurance exchange, and individually purchased plans.

Prior to the pandemic, virtual care modalities consisted primarily of secure e-mail messaging, telephone calls, and video visits with the patient's primary care physician, nurse practitioner, or specialty care physician, all linked to the patient's electronic medical record. With the onset of the pandemic, Kaiser Permanente developed a Covid-19 landing page on its main website, expanded the use and functionality of the e-visit, and launched an online patient self-assessment tool for Covid-19. E-visits provide treatment or clinical triage to members virtually, using symptom-based questionnaires. Using decision-tree logic, the e-visit guides patients to one of three options: self-care; to make a video, phone, or in-person appointment with a physician; or to get a prescribed medication. Individuals who are not enrolled in the Kaiser Permanente health insurance plan have access to the online self-assessment, which screens for symptoms of Covid-19 and directs users to online services, as needed.

The Expanding Modalities of Virtual Care

Virtual care at Kaiser Permanente is defined as including all contacts between patients and caregivers that do not involve an in-person visit to an adult or pediatric care clinic, urgent care center, emergency department, or specialty department. Virtual care may be conducted via telephone or over the Internet.

Telephone-based virtual care consists of scheduled conversations with physicians and other clinicians who have access to the patient's electronic medical record during the interaction. Online modalities include secure email, video visits, e-visits, and the online self-assessment. To email a physician or other provider, the patient logs into the secure messaging platform and can send messages and attachments, including photos and documents. Email correspondence and attachments are retained in the patient's medical record. Video visits are similar to telephone visits: They are scheduled, synchronous interactions with a clinician, with connection to the patient's medical record.

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An e-visit developed for the coronavirus era is an online survey that asks patients about their symptoms and concerns; it is connected to the patient's electronic health record. E-visits are available for common symptoms including sore throat, rash, urinary tract infections, and cold and flu (see Appendix). Based on the patient's survey answers and medical history, as documented in the electronic medical record, the patient is directed to one of three options. Patients judged to need an in-person consultation are referred to schedule a telephone or video visit with a clinician, or walk in to Urgent Care. Those judged to need only self-care are sent personalized educational materials and videos. Those judged likely to need a medication are offered a prescription; if they accept the prescription, it will be reviewed for appropriateness by a clinician. Once approved, the prescription is emailed to the patient within 2 hours, without ever needing to be seen in-person.

In March 2020, as many patients began to express apprehension over potential infection risks attendant to in-person care, Kaiser Permanente modified its e-visit offering and created e-visits designed for several Covid-19 concerns, including scheduling for antibody testing and some limited diagnostic testing, and providing off-work/school notes, return-to-work/school guidance.

Patients who are not health insurance plan members but who access the public Kaiser Permanente website are directed to the online Covid-19 self-assessment. The self-assessment is a structured set of questions that helps users ascertain whether they need to be tested for Covid-19. It is not linked to an electronic medical record but is accessible to the general public and to members who wish to remain anonymous.

Trends in Care During Initial Surge of Covid-19

The pattern of ambulatory care during the initial 5 months period of the Covid-19 pandemic featured initial declines in in-person visits and increases in virtual visits but a downward trend in overall encounters from the beginning of February through the middle of April. This overall decline was followed by an increase in both in-person and virtual care visits in June and July, as Covid-19 infections and concerns resurged in Southern California, with total encounters exceeding levels experienced in February, but with virtual care accounting for 77% of the total, compared to 38% in February (Figure 1).

FIGURE 1

Virtual and In-Person Encounters for Ambulatory Patient Care, February – July 2020

This figure displays the trend in use of virtual and in-person care modalities from the week of February 2, 2020, which was before the first Covid-19 cases were recognized in Southern California, through the middle of July, the most recent date for which data were available. These data include ambulatory encounters related to Covid-19 and all other patient needs, including primary and specialty services. Inpatient hospital admissions are excluded. While in-person encounters have recovered from a low of about 60,000 a week in early April, the 203,000 in early July is less than half of early February's 514,000 weekly visits. The newest virtual care tool, the Covid-19 Online Assessment, peaked at 40,000 weekly encounters at the end of March, in its second week. Patient use of the assessment tool has continued, never dropping below 6,000 per week, and reached its second peak at nearly 21,000 in the last week of June, as a resurgence of the coronavirus emerged in the area. It was used nearly 230,000 times during the period measured.
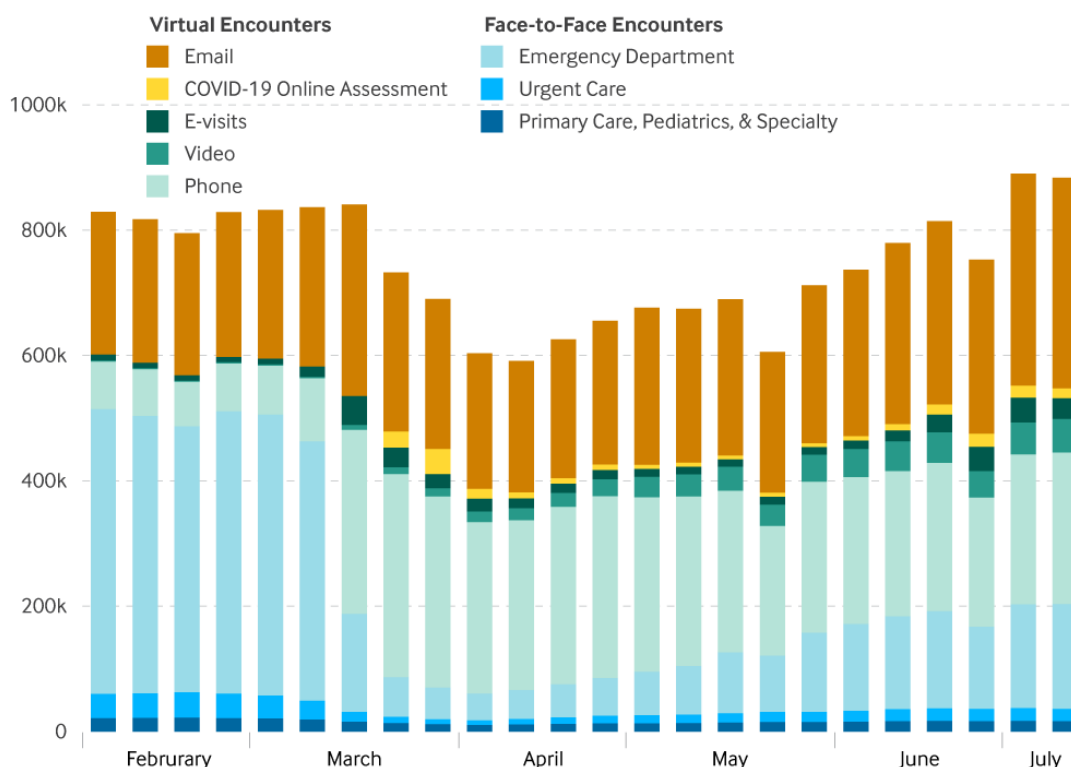
Note: Blue shades indicate type of in-person care delivery location; Green and orange shades indicate type of virtual care delivery methods.

Source: Data were obtained from Kaiser Permanente's electronic health record, HealthConnect.

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Because of Kaiser Permanente's ongoing efforts to develop and expand virtual care access, already at the beginning of February — prior to the Covid-19 impact locally — 38% of total ambulatory care encounters were accounted for by virtual modalities. The largest share (28%) was accounted for by secure e-mail messaging, followed by telephone appointments (9%) and e-visits (1%). This pattern remained constant through the week of March 8, at which time the seriousness of the virus

had become known and Kaiser Permanente instituted policies to shift as much care as possible to virtual modalities.

> " *By the week of March 15, virtual modalities accounted for 78% of total ambulatory encounters, rising to 90% by the week of April 5 and then declining slightly to 87% by the end of April."*

By the week of March 15, virtual modalities accounted for 78% of total ambulatory encounters, rising to 90% by the week of April 5 and then declining slightly to 87% by the end of April. In contrast, by the week of April 26, in-person visits for primary, pediatrics, specialty care, urgent care, and the emergency department had fallen to 13%, and stabilized in the 22%–24% range by mid-July. In-person visits to the emergency department and urgent care had been reduced by 38% and 67%, respectively, compared to levels experienced prior to the pandemic.

Trends in Care After Resurgence of Covid-19

Cases of Covid-19 infection resurged in Southern California in June and July, leading to increased ambulatory care visits at Kaiser Permanente. From April to July the number of in-person visits increased significantly, as the health system began accepting deferred, nonemergency cases that could not be handled using virtual modalities. There was a modest corresponding decline in telephone visits, but continued strong use of video visits, e-visits, and especially of secure email interactions. The growth of secure email was prompted by patient queries on how to access the diagnostic and antibody Covid-19 tests and review results.

By the week of July 12, Kaiser Permanente was experiencing almost 880,000 ambulatory visits per week, exceeding the 820,000 average weekly rate in February. Of these encounters, 77% were performed using virtual care modalities: 78% of adult primary care visits, 46% of pediatrics visits, and 56% of specialty visits were telephone and video visits. Secure email accounted for 38% of total ambulatory visits, scheduled telephone visits for 27%, video for 6%, e-visits for 4%, and Covid-19 online self-assessments for 2%. In-person visits for primary, specialty, and pediatrics care for the week of July 12 were less than half of their pre–Covid-19 level of 55% of total encounters, but had recovered to 19% of total encounters from a low point of just 7% in the week of April 5. By July 12, in-person visits to the emergency department and urgent care were down by 24% and 50%, respectively, compared to levels experienced in February, prior to the pandemic.

Care for Suspected and Confirmed Covid-19 Infection

To understand the use of virtual and in-person modalities specifically for care related to Covid-19, an encounter was defined as Covid-19 confirmed or suspected if the clinician recorded any of several ICD-10 codes. Diagnosis codes related to Covid-19 included Coronavirus Covid-19 Acute Bronchitis, Coronavirus Covid-19 Acute Respiratory Distress Syndrome, Coronavirus Covid-19 Disease, Coronavirus Covid-19 Lower Respiratory Infection, and Coronavirus Covid-19 Pneumonia.

> *The patient Covid-19 self-assessment tool was introduced the next week and began to increase rapidly; by the week of March 29, when total infection-related virtual visits peaked, the self-assessment tool accounted for 53% of total encounters for Covid-19."*
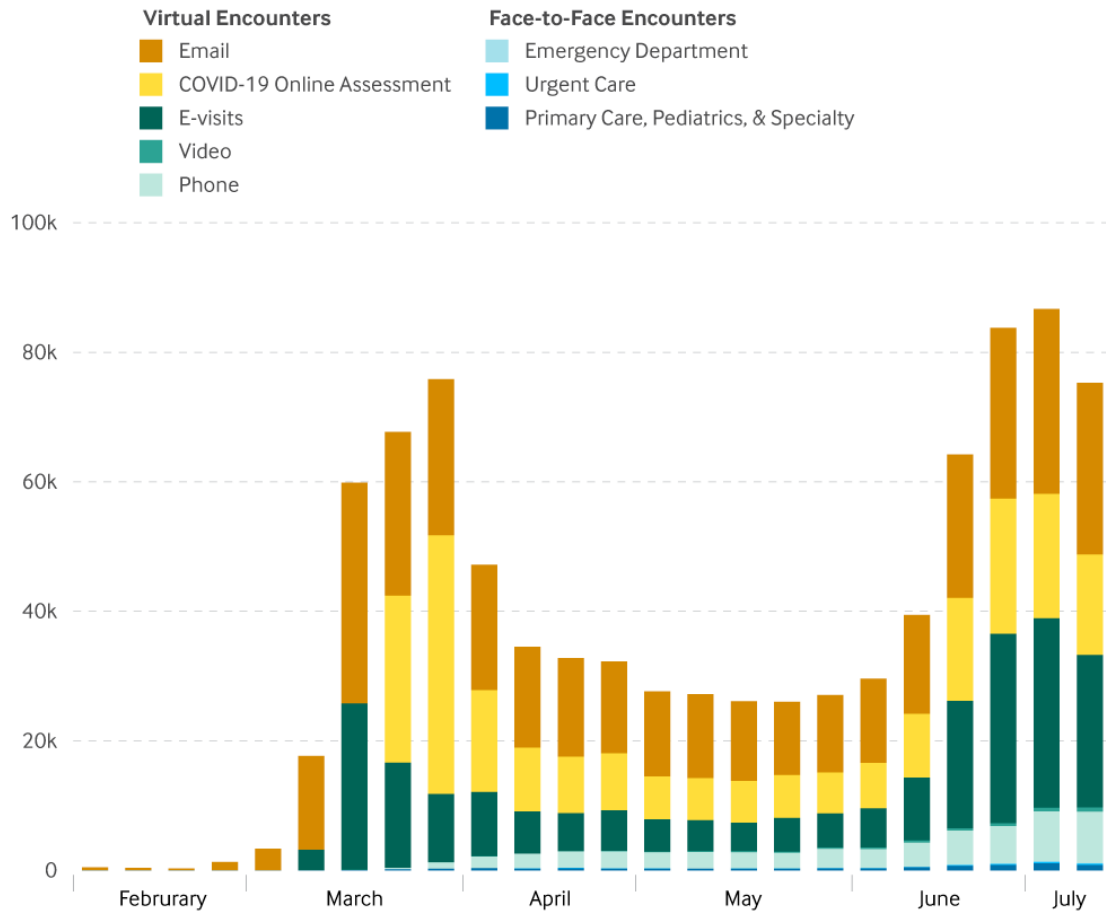
Suspected and confirmed ambulatory encounters related to Covid-19 rose from 17,696 during the week of March 8 to a peak exceeding 75,000 during the week of March 29 and then declined to 27,000 by the end of May (Figure 2). Encounters then resurged in June, peaking at more than 86,000 the week of July 5, before dropping to 75,000 during the week of July 12.

FIGURE 2

Number of Weekly Encounters for Covid-19 Infection, by Category, February — July 2020

Since the week of February 2 through the week of July 12, 99% of encounters for Covid-19 infections have been handled virtually. During that time, the number of in-person visits related to Covid-19 infection has never exceeded 1,400 per week, while total weekly virtual encounters have been in the tens of thousands since March, with peaks exceeding 75,000 and 85,000, during the spring and summer surges.

Virtual Encounters
- Email
- COVID-19 Online Assessment
- E-visits
- Video
- Phone

Face-to-Face Encounters
- Emergency Department
- Urgent Care
- Primary Care, Pediatrics, & Specialty

Note: Blue shades indicate type of in-person care delivery location; Green and orange shades indicate type of virtual care delivery methods.

Source: Data were obtained from Kaiser Permanente's electronic health record, HealthConnect.

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During the first spike of Covid-19 in Southern California in the week of March 15, e-visits grew to account for 43% of total visits for suspected or confirmed infection, with secure email accounting for 57%. In-person visits to the emergency departments and urgent care centers accounted for just 37 encounters, less than 1% of total encounters for Covid-19. The patient Covid-19 self-assessment tool was introduced the next week and began to increase rapidly; by the week of March 29, when total infection-related virtual visits peaked, the self-assessment tool accounted for 53%

of total encounters for Covid-19. The increase in use of the patient self-assessment was due to its prominent visibility on the health system's home web page. Subsequently, Kaiser Permanente increased the website prominence of the e-visit modality, as well, as it is linked to the electronic medical record and a more direct follow-up referral pathway. Virtual care visits for Covid-19 resurged at Kaiser Permanente in June, and peaked at 85,000 during the week of July 5, with an additional 1,400 in-person visits for infection. Of the virtual visits for Covid-19 infection, 34% used the e-visit modality, 33% used secure email, 22% used the Covid-19 self-assessment, and the remainder used phone and video visits.

## Use of the E-Visit Modality for Covid-19 and Other Conditions

Kaiser Permanente in Southern California has expanded the range of its e-visit modality as its primary virtual care response to the Covid-19 pandemic. At the beginning of February, before the first Covid-19 cases, it experienced approximately 9,000 e-visits per week; that figure would quadruple by July, largely due to the Covid-19 e-visits, but also from growing use of e-visits for other conditions (Figure 3).

FIGURE 3

E-visit Weekly Volume by Covid-19, URI, and All Other, February – July 2020

This figure displays the trend in utilization of e-visits from early February through mid-July 2020; during this time period there were more than 450,000 e-visit encounters. E-visit encounters peaked the week of March 15, with more than 45,000 encounters. During this week, Covid-19 and URI related e-visits accounted for 81% of total e-visits. Of note, demand for All Other e-visits (not counting URI) rose by 80% to 7,968 encounters in early July from 4,443 in early February, suggesting member interest in the e-visit modality for additional conditions.
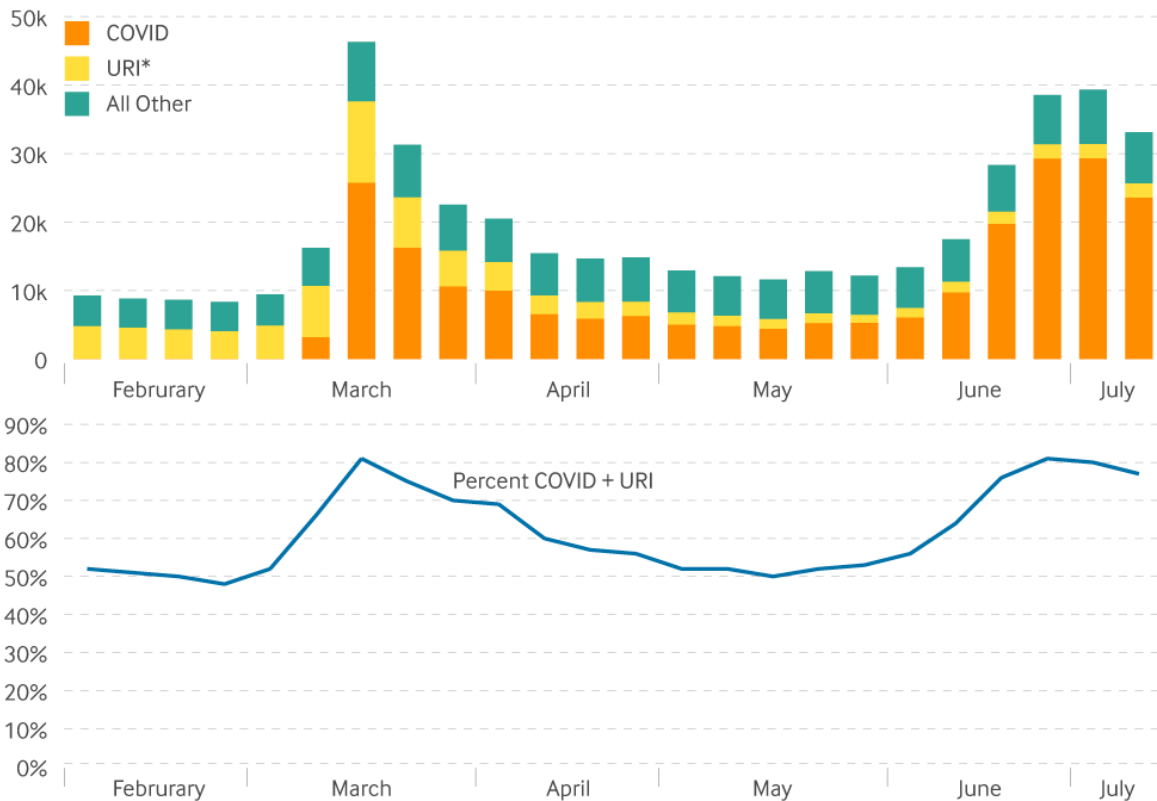
Notes: *Upper Respiratory Infection (URI) includes Cold and Flu, Cough, and Sinus Problem E-visits.
Orange shade indicates Covid-19 infection e-visit; Yellow shade indicates URI e-visits; Green shade indicates All Other e-visits. Red line indicates combined Covid-19 and URI e-visits

Source: Data were obtained from Kaiser Permanente's electronic health record, HealthConnect.

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E-visits for Covid-19 increased rapidly, and, by the week of March 15, Covid-19 accounted for 56% of 46,000 total e-visits. Patient demand for Covid-19 e-visits then declined through May. Beginning in June, patient use of e-visits for Covid-19 began to rise again rapidly, with a peak of 29,000 during the week of July 5. Use of e-visits for conditions other than Covid-19 or URI increased by 80% from early February to early July.

Lessons Learned

The Covid-19 pandemic, which dissuaded caregivers from recommending — and patients from seeking — in-person visits, has caused an upsurge of interest in telemedicine and other forms of virtual care nationally. As an integrated health care system that encompasses a health plan, hospitals, and eight independent and physician-led Permanente Medical Groups, Kaiser Permanente has the economic incentive and the organizational capacity to promote virtual modalities for many forms of primary and specialty care. Already in February 2020, before the onset of the Covid-19 pandemic, virtual modalities accounted for 38% of total ambulatory care encounters in the Southern California region. In response to the pandemic, the organization expanded its virtual modalities from telephone visits, video visits, and secure email to include a specially designed e-visit for Covid-19 and the creation of a new Covid-19 online patient self-assessment.

The trends reported here are from a large integrated delivery system with its own payer arm; there may be variations in experiences at physician practices and provider organizations that are less integrated with health plans. Several studies and surveys from non-integrated physician practices report dramatic reductions in total ambulatory care and patient access, with only very modest increases in virtual visits.[1-4]

In marked contrast, during this difficult period at Kaiser Permanente in Southern California, while total weekly encounters reached a low of 591,000 in April, the July 12 level of 883,750 exceeds the number of pre–Covid-19 encounters, 829,362. The decline in in-person encounters has been mitigated by the near doubling in virtual care visits.

Virtual care modalities can both supplement and substitute for in-person care. Based on the experience of Kaiser Permanente in Southern California, the keys to physician acceptance and patient adoption include reliable technology platforms, integration points into other care channels and the electronic medical record, and multiple virtual modalities to address patient preference. Virtual care at Kaiser Permanente spanned telephone, video, email, e-visits, and the online self-assessment. All were secure and connected to the patient's electronic medical record, with the exception of the self-assessment, which was designed to be accessible to nonmembers without electronic records. Covid-19 has accelerated the utilization of virtual modalities. KP SCAL is capitalizing on this momentum to broaden its virtual offerings, including expanding e-visits to include 27 new conditions, in addition to Covid-19 (Appendix).

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Existing and Newly Approved E-Visits at Kaiser Permanente in Southern California.

Disclosures: Tadahashi Funahashi, Lina Borgo, Kevin Fennell, and James Robinson have nothing to disclose.

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