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Work Group Report: COVID-19: Unmasking Telemedicine

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Telemedicine adoption has rapidly accelerated since the onset of the COVID-19 pandemic. Telemedicine provides increased access to medical care and helps to mitigate risk by conserving personal protective equipment and providing for social/physical distancing to continue to treat patients with a variety of allergic and immunologic conditions. During this time, many allergy and immunology clinicians have needed to adopt telemedicine expeditiously in their practices while studying the complex and variable issues surrounding its regulation and reimbursement. Some concerns have been temporarily alleviated since March 2020 to aid with patient care in the setting of COVID-19. Other changes are ongoing at the time of this publication. Members of the Telemedicine Work Group in the American Academy of Allergy, Asthma & Immunology (AAAAI) completed a telemedicine literature review of online and Pub Med resources through May 9, 2020, to detail Pre-COVID-19 telemedicine knowledge and outline up-to-date telemedicine material. This work group report was developed to provide guidance to allergy/immunology clinicians as they navigate the swiftly evolving telemedicine landscape. © 2020 American Academy of Allergy, Asthma & Immunology (J Allergy Clin Immunol Pract 2020;8:2461-73)

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Abbreviations used
ACGME- *Accreditation Council for General Medical Education*
    API- *Application Program Interface*
   BAA- *Business associate agreement*
  CMS- *Center for Medicare and Medicaid Services*
  DTC- *Direct-to-consumer*
    ED- *Emergency department*
  EMR- *Electronic medical record*
  ePHI- *Electronic protected health information*
FSMB- *Federation of State Medical Boards*
    FV- *Facilitated visit*
  HHS- *Department of Health and Human Services*
HIPAA- *Health Insurance Portability and Accountability Act of*
    1996
  HITE- *Health Informatics, Technology and Education*
  HL7- *Health Level Seven*
  OCR- *Office for Civil Rights*
  PHE- *Public health emergency*
  PPE- *Personal protective equipment*
  VHA- *Veteran's Health Administration*
  WAF- *Web Application Firewall*

The COVID-19 pandemic led to an unprecedented change in clinical operations, motivating physicians and health care systems worldwide to rapidly implement telemedicine programs to reduce or replace in-person visits.[1] Telemedicine has allowed for increased workforce sustainability, limitation of clinician direct exposure to patients, overall reduction of personal protective equipment (PPE) use, and may reduce clinician burnout. It has also facilitated staffing of both large and small facilities that are overwhelmed with pandemic-related patient overload.[2]

In addition, telemedicine has been used for surge control or "forward triage"—the triaging of patients before they arrive in the emergency department (ED). Direct-to-consumer (DTC) visits have allowed patients to be efficiently screened while protecting patients, clinicians, and the community from exposure.[3]

This rapid need for telemedicine visits has generated the demand to effectively educate allergists/immunologists on how to optimize utilization. Before the pandemic, telemedicine was often reserved for patients with decreased access to care. It is quickly becoming the preferred mode of delivering care for both follow-up and new clinic patients.[3,4] Recognizing telemedicine as a growing field for the practicing allergist/immunologist, the American Academy of Allergy, Asthma and Immunology Health Informatics, Technology and Education (HITE) Committee established a Telemedicine Work Group to review multiple aspects of telemedicine including utility, adoption procedures, billing, security, electronic medical record (EMR) integration, education, and state specific issues.

TRADITIONAL RATIONALE FOR TELEMEDICINE: CONVENIENCE OF CARE, INCREASED ACCESS, AND COST SAVINGS

Telemedicine has been shown to decrease costs of travel for patients in both time and money. By making it more convenient for them to obtain care, telemedicine has increased access for patients who might not otherwise be able to receive care or be seen at a given practice.[5,6]

Before the COVID-19 pandemic, patients who may have benefited from telemedicine included poor, elderly, or disabled patients, or those who simply lived too far away to travel for an in-person visit.[5] Telemedicine is well suited to large rural states or medically underserved urban areas. A 2019 study found that telemedicine in the Veteran's Health Administration (VHA) has likely improved access to care for veterans who live in rural areas.[7]

This convenience is also applicable in emergency and hospital settings where specialists may not be on site. Virtual consultations can limit the need for transportation of ED patients to other facilities for care and hospital transfers.[8,9] As early as 2007, estimates predicted that teleconsultations could obviate the need for up to 850,000 transfers and save US$537 million dollars per year.[8]

A 2016 retrospective study performed in the VHA looking at data from 1997 to 2008 found that, for the clinics studied, the mean no-show rate for doctor appointments was 18.8%. The average cost of a no-show visit in the VHA in 2008 was US$196.[10] Telemedicine may help improve patient compliance and decrease the associated financial cost to practices and clinicians of no-show visits by reducing barriers to care.[11] Cost-benefit analysis data for the use of telemedicine is minimal at this time. However, recent studies conducted in teledermatology and telemedicine in the pre-hospital care setting have recently shown promising results.[12,13]

RATIONALE FOR TELEMEDICINE DURING THE COVID-19 PANDEMIC

Despite the exponential growth of telemedicine in the past 5 years in the United States, the adoption of these services by the allergist/immunologist community was minimal before the pandemic.[11] Several factors contribute to the rationale for growth of telemedicine during the COVID-19 pandemic. First, the public health emergency (PHE) has led to the development of guidelines for quarantine as well as for social and physical distancing.[14] The Centers for Disease Control and the Department of Health and Human Services (HHS) have statutory authority to promulgate regulations that protect individuals from communicable diseases, including quarantinable communicable diseases as specified in an Executive Order of the President.[15] A study conducted in late March 2020 by the inspector general of the HHS indicated that hospitals in the United States were desperately short of PPE[16] putting health care workers at increased infectious risk. Telemedicine visits have the potential to decrease unnecessary use of PPE and reserve available PPE for hospital use. In addition, it is imperative to continue to treat nonemergent patients outside the hospital to prevent deterioration in their health, as well as to accommodate for the increased demand to care for the sickest coronavirus patients in EDs and intensive care units. Therefore, using telemedicine is ideal for ongoing safe treatment of patients, while continuing to promulgate responsible social and physical distancing in accordance with quarantine regulations in the hopes of slowing the spread of COVID-19.

STEPS INVOLVED IN STARTING A TELEMEDICINE PROGRAM

The first step in setting up a telemedicine program is determining the types of patients who will be seen. Assuming that federal, state, malpractice, and insurance guidelines are taken into account, these may include initial consultations, established visits, and patients at a distance. It is important to know the limitations of telemedicine, as there are certain visits that can be challenging to perform through telemedicine. Procedures and

TABLE I. Examples of encrypted telemedicine platforms during the COVID-19 pandemic

Charm Telehealth	Available from: https://www.charmhealth.com/telehealth. Accessed May 9, 2020.
Doximity	Available from: https://www.doximity.com. Accessed May 9, 2020.
Doxy.me	Available from: https://doxy.me/. Accessed May 9, 2020.
Jotform	Available from: https://jotform.com. Accessed May 9, 2020.
Kareo	Available from: https://www.kareo.com/. Accessed May 9, 2020.
Mend	Available from: https://www.mendfamily.com/. Accessed May 9, 2020.
Poly (formerly Polycom.	Available from: https://www.poly.com/us/en/solutions/industry/healthcare. Accessed May 9, 2020.
Secure Telehealth	Available from: https://securetelehealth.com. Accessed May 9, 2020.
Teladoc	Available from: https://www.teladoc.com/. Accessed May 9, 2020.
Vidyo	Available from: https://www.vidyo.com/. Accessed May 9, 2020.
Vsee	Available from: https://vsee.com/. Accessed May 9, 2020.
Zoom—Health Care version	Available from: https://zoom.us/healthcare. Accessed May 9, 2020.

TABLE II. Examples of nonencrypted telemedicine platforms during the COVID-19 pandemic

Apple FaceTime	Available from: https://apps.apple.com/us/app/facetime/id1110145091. Accessed May 9, 2020.
Google Hangouts	Available from: https://hangouts.google.com/. Accessed May 9, 2020.
Skype	Available from: https://www.skype.com/en/. Accessed May 9, 2020.
Zoom—Free and regular paid versions	Available from: https://zoom.us/. Accessed May 9, 2020.

procedure-related visits, such as allergy skin tests, immunotherapy and/or biologic injections, and food and/or drug challenges, in general are difficult to accomplish except in the case of a facilitated visit where a trained clinician is present at the patient's site who is adequately trained and is able to accept responsibility for treating the patient if a systemic allergic reaction occurs.

The next step is to decide whether the telemedicine visits will be through a synchronous or asynchronous approach. Asynchronous telemedicine is communication with a patient separated by distance and time. Synchronous telemedicine is where the clinician and patient are connected at the same time in a live interactive audiovisual exchange.

Synchronous telemedicine is further classified into DTC visits or facilitated visits (FVs). A DTC visit occurs between the patient and clinician at a nonmedical facility, such as the home, where communication is directly through the patient's smartphone or computer. An FV requires a facilitator to operate equipment and guide the patient through the video visit.

The equipment needed at the origination (patient) site depends on whether the appointment is an FV, a DTC visit, or a telephone visit. Please refer to this article's Online Repository at www.jaci-inpractice.org for Specific Technology Guidelines. For an FV, there should be a specific room in which the patient can be seen (often a regular examination room). Most origination sites have a "telemedicine cart," which contains the hardware, software, and other equipment needed for a telemedicine visit. For a DTC visit, the only equipment required at the patient's site is what is necessary for video conferencing. This can include a smartphone or a computer with internet, audio, and video capability. The DTC visit should be conducted through a Health Insurance Portability and Accountability Act of 1996 (HIPAA) compliant platform. However, during the COVID-19 pandemic, the HHS Office for Civil Rights has temporarily decided to "exercise enforcement discretion and waive penalties for HIPAA violations against health care providers that serve patients in good

faith through everyday communications technologies such as FaceTime or Skype" (FaceTime: Apple Inc., Cupertino, CA; Skype: Skype Technologies, Palo Alto, CA).[17] There is no video requirement for a telephone visit, only audio.

The third step is determining where the clinician will conduct the visit. For telemedicine visits, the distant site is the location of the clinician while he or she is providing care. The location of the patient at the time he or she is receiving care is termed the originating site. During COVID-19, restrictions have been lifted on where the patient and the clinician can be located for a telemedicine visit to help eliminate barriers to care.[17] Requirements at the distant site include access to a reliable internet connection and adequate privacy to protect patient private health information. Attention should be given by the clinician to lighting, sound, and their surroundings. The clinician should be aware that everything in his or her environment can be seen and heard by the patient. Positioning the clinician's camera to maximize eye contact can provide needed nonverbal communication within the digital platform. If additional family members are present with the patient, establishing their role and connection with the patient is recommended.

Once the platform and equipment are in place, the next step is to organize the scheduling of patients. Guidelines for patients best suited for telemedicine should be established. Pre-clinic huddles can be effective forums for identifying patients suitable for telemedicine visits. Initially, consider scheduling the same amount of time for a telemedicine visit as an in-person visit to allow a buffer for technology issues that may come up. Documentation in the EMR can be done at the same time as talking to the patient. The scheduling of telemedicine visits among in-person visits depends on practice efficiency, notification system, and workflow. This can be adjusted as needed.

One important aspect to developing a successful telemedicine program is adequate training. Clinicians (and facilitators in the case of FVs) should familiarize themselves with the software and

TABLE III. Online resources for telemedicine

American Medical Association	Telehealth implementation playbook. Available from: https://www.ama-assn.org/amaone/ama-digital-health-implementation-playbook. Accessed May 9, 2020.
American Telemedicine Association	Telemedicine forms. Available from: https://www.americantelemed.org/resource/. Accessed May 9, 2020.
American Academy of Allergy Asthma and Immunology	
Detailed toolkit	Telemedicine. Available from: https://www.aaaai.org/practice-resources/running-your-practice/practice-management-resources/telemedicine. Accessed May 9, 2020.
COVID-19 billing	Utilize telemedicine: how does billing work? Available from: https://education.aaaai.org/resources-for-a-i-clinicians/telemedicine-billing_covid-19. Accessed May 9, 2020.
Platforms	Telehealth platforms to consider. Available from: https://education.aaaai.org/resources-for-a-i-clinicians/telehealthplatforms_covid-19. Accessed May 9, 2020.
American Academy of Pediatrics	Coding for telemedicine services. Available from: https://www.aap.org/en-us/Documents/coding_factsheet_telemedicine.pdf. Accessed May 9, 2020.
Centers for Medicare and Medicaid Services	Medicare telemedicine health care provider fact sheet. Available from: https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet. Accessed May 9, 2020.
American College of Allergy, Asthma and Immunology	Available from: https://college.acaai.org/practice-management/telehealth-toolkit. Accessed May 9, 2020.

any telemedicine equipment being used ahead of time. It is important to review protocols for coping with software failures and have an easily accessible list of technical support numbers on hand in case there are hardware or software issues. For example, during the COVID-19 pandemic, one may have their primary platform on their HIPAA-secure EMR software. If that fails, one may have a backup, encrypted independent platform. If the first 2 encrypted options fail, traditional phone modalities may be used (see Tables I and II for examples of encrypted and non-encrypted telemedicine platforms, respectively). Flexibility and versatility in dealing with technology failures in real time is paramount.

Providing checklists or a toolkit for a patient that includes educational handouts on the patient's expectations, an intro-duction to the consent process, how to contact information technology if he or she encounters difficulties during the visit, and how the patient can prepare to ensure a stable digital connection during the visit is essential. Online tools including podcasts and webinars can offer clinicians multiple medical ed-ucation modalities.[11] Please see Table III for online resources for telemedicine.

Clinic schedulers and other staff should contact patients before the visit to discuss preparation for their telemedicine visit. Included in this discussion should be a review of the devices (computer with camera, smartphone, phones, digital tablets) that can be used for the remote telemedicine encounter. In addition, test calls with the device are recommended to ensure that the patient will be able to reliably connect to the clinician for his or her telemedicine visit. Depending on the platform and the health care system involved, consent, required by most states, may be obtained by the clinic staff or clinician and documented before the visit. Even if obtaining a patient consent for telemedicine visits is not required in a particular state, it is an advisable best practice to implement in telemedicine.[18]

A telemedicine visit starts when the patient logs into the telemedicine site. Some EMRs have an integrated telemedicine application, thereby eliminating the need for a separate tele-medicine application. However, this is not a requirement; the telemedicine and EMR applications do not have to be linked. Once a connection with the patient has been established and consent obtained, the encounter can start. It may be helpful to have the patient's chart in the EMR open, either on the same screen or on a separate screen, to refer to and facilitate docu-mentation during the visit. The clinician may want to discuss what to do if the call drops or internet access is disrupted with the patient at the start. Documenting information from the patient as to his or her current location and phone number is recommended as it can be used to contact emergency medical services if an emergency occurs during the telemedicine visit or if the connection with the patient is lost.

The clinician should then conduct the history as he or she would for an in-person visit. After the history has been obtained, a physical examination is performed. The depth of the physical examination depends on the location of the patient. If the patient is at a medical facility, the physical examination can be per-formed with the use of peripheral equipment (eg, electronic stethoscope and otoscope) and the facilitator. If it is a DTC visit, a physical examination can still be performed, with the clinician guiding the patient to maneuver certain aspects for visualization. As expected, the telemedicine examination is not as compre-hensive as compared with an in-person examination. However, it is not as limited as one might expect. With a little creativity, the clinician can still obtain a fair amount of useful data from the telemedicine examination (see Table IV for example telemedicine physical examination pearls). After the physical examination and medical decision making, an assessment and plan are formulated. It is necessary to write orders, give prescriptions, and provide instructions to the patient to conclude the visit. Please see Table V for an overview of the Steps for Conducting a Tele-medicine Visit.

INTEGRATION WITH EMRS

The utility of EMR integration can depend on the type of telemedicine that is employed. For remote monitoring tele-medicine, there have been studies using patient-facing technol-ogies to collect patient-generated health data that then flow into EMRs (such as peak flow or frequency of metered dose inhaler use).[19,20] However, these processes currently remain cumber-some and are not widely implemented. For video conferencing

TABLE IV. Example telemedicine physical examination with E/M billing guidance

Example physical examination:
VS: T 98.5 F Wt. 180 pounds BP 126/75 HR 65
Constitutional: Appears healthy, alert, cooperative, oriented, and in no acute distress
Head: Normocephalic and atraumatic
Eyes: Conjunctivae/corneas clear, without redness or drainage
Nose: External nose normal, no drainage
Pulmonary/chest: No tachypnea, no retractions, no cyanosis
Neurological: Grossly normal without focal findings based on what could be seen
Skin: Skin color normal. No rashes or lesions visible
Psychiatric: Normal mood and affect. Behavior is normal
Additional examination items possible with:
Patient assistance
Extra equipment at home (eg, Peak Flow Meter)
Smart phone applications with modifications and/or digital telemedicine equipment
Wearables (eg, ECG)
Tips for obtaining vital signs:
Temperature: Patients can take it themselves
Blood pressure: Patients can check it if they have the equipment
Heart rate: Patients can count it if taught how to do so or use a smart watch
Respirations: Patients or the clinician can count it
Oxygen saturation: Patients can check it if they have a pulse oximeter at home
Weight: Patients can weigh themselves
Tips for examining other organ systems:
Ear examination: Can be performed with a smart phone app and otoscope attachment, or digital telemedicine otoscope
Sinus tenderness: Patients can be taught self-palpation
Oropharynx: Use the patient's flashlight
Lymph node examination: Patients can be taught self-palpation
Heart and/or lung examination: Can be performed with a digital telemedicine stethoscope
Abdominal examination: Patients can be taught self-palpation
Extremities: Can observe if any clubbing, cyanosis, or edema
E/M billing guidance:
All other things being equal and if documentation requirements for history and medical decision making are met and maximized:
95 Guidelines:
This would be a detailed examination (7 organ systems)
The examination would meet criteria to bill a Level 3 New Patient or a Level 4 Established Patient
97 Guidelines:
This would be an expanded problem-focused examination (6 bullet points)
The examination would meet criteria to bill a Level 2 New Patient or a Level 3 Established Patient

E/M, Evaluation and management; *ECG,* electrocardiogram.

telemedicine visits, the medical history, orders, and visit notes associated with each video visit are integrated within the EMR, thus improving workflows and clinician/patient satisfaction.[21,22] The patient-facing interface can be via the vendor's mobile application or EMR patient portal. EMR telemedicine vendors offer additional features including integration with referral management, scheduling and visit reminders, patient intake, and patient communications. Please refer to this article's Online Repository at www.jaci-inpractice.org for additional information on Integration with EMRs.

EVIDENCE FOR BENEFIT OF USE OF TELEMEDICINE IN ALLERGY/IMMUNOLOGY CLINICAL PRACTICE

In a recent meta-analysis, combined telecase management and teleconsultation were effective telemedicine interventions to improve asthma control and quality of life in adults.[23]

Telemedicine was also used to provide asthma education in medically underserved areas. Scheduled facilitated telemedicine visits with certified asthma educators over a period of 1 year reduced the number of unscheduled visits for asthma.[24] In addition, telemedicine was shown to be noninferior to in-person evaluation for asthma care. This is particularly important in medically underserved areas where access to asthma specialists may not be readily available. Remote Presence Solution equipped with a digital stethoscope, otoscope, and high-resolution camera was used to perform the visits in this study, with either a registered nurse or respiratory therapist serving as a telefacilitator.[25] A pilot study of 50 patients published in 2018 using telemedicine to evaluate penicillin allergy demonstrated high patient satisfaction and potential savings of over US$30,000 due to increased access to specialty allergy/immunology care and improved antibiotic stewardship.[26] As with any benefit comes an evaluation of risk. Patient safety and the lack of inferiority of the quality of care

TABLE V. Steps for conducting a telemedicine visit

Area of the allergy encounter	Component requiring education
Previsit	Determine what visits are best suited for telemedicine
	Ensure that the patient has telemedicine platform access
	Ensure that the patient and clinician have previsit planning and test calls to establishing secure remote and if needed, video connections
During the visit	Obtain and document consent
	Ensure effective video communication
	Conduct physical examinations
	Optimize privacy and data security
	Complete orders, prescriptions, and patient instructions
Postvisit	Bill and code
	Correspond with PCP

PCP, Primary care provider.

TABLE VI. CMS 2019 coverage additions before COVID-19*

Brief communication technology-based service (eg, virtual check-in):
CMS and some private payers will reimburse for a brief 5- to 10-min patient-initiated check-in via phone or other telecommunications modality that is meant to determine if an in-person visit is necessary
Remote evaluation of prerecorded patient information:
CMS and some private payers will reimburse for the physician review of video or images submitted by an established patient
CMS and some private payers will reimburse for the physician review of video or images submitted by an established patient
Interprofessional internet consultation:
CPT codes 99452, 99451, 99446, 99447, 99448, and 99449
E-visit codes:
Non-face-to-face digital evaluation codes (CPT 99421-99423) are billed once weekly based on the cumulative amount of time spent reviewing, researching, and responding to patients via a secure health portal. Place of service "11" is appropriate, as an e-visit had not been formally recognized by CMS as a telehealth service

HCPCS G2010; HCPCS G2012.

CMS, Center for Medicare and Medicaid Services; *CPT*, current procedural terminology.

*Centers for Medicare and Medicaid Services. Medicare Program; Revisions to Payment Policies Under the Physician Fee Schedule and Other Revisions to Part B for CY 2019; Medicare Shared Savings Program Requirements; Quality Payment Program; Medicaid Promoting Interoperability Program; Quality Payment Program-Extreme and Uncontrollable Circumstance Policy for the 2019 MIPS Payment Year; Provisions From the Medicare Shared Savings Program-Accountable Care Organizations-Pathways to Success; and Expanding the Use of Telehealth Services for the Treatment of Opioid Use Disorder Under the Substance Use-Disorder Prevention That Promotes Opioid Recovery and Treatment (SUPPORT) for Patients and Communities Act [Internet]. November 23, 2018. Available from: https://www.federalregister.gov/documents/2018/11/23/2018-24170/medicare-programrevisions-to-payment-policies-under-the-physician-fee-schedule-and-other-revisions. Accessed May 9, 2020.

with telemedicine versus standard care are ongoing areas of research.[27]

BILLING AND REIMBURSEMENT

The relationship between telemedicine reimbursement rules and access to care is complex. Concerns about potential overuse and quality of care have caused many payers to place considerable restrictions on fee-for-service telemedicine coverage. Inconsistency among payers and states in coverage for telemedicine services may shift costs from payers to clinicians and patients, preventing adoption. The opportunity cost of nonreimbursed or under-reimbursed care has been a major barrier to telemedicine implementation and before COVID-19 prevented many physicians and health systems from offering potentially valuable telemedicine services to their patients. Studies show that when reimbursement is limited, patients are underserved by telemedicine services.[28]

Coverage

Although parity in coverage (both in-person and telemedicine services are covered for the same indication) and payment (eg, meaning that reimbursement for telemedicine services

approximates that of the equivalent in-person evaluation and management [E/M] service) has never been universally mandated, payment parity is the coveted norm. Existing data suggest that enactment of parity increases adoption of telemedicine. Almost 90% of both users and nonusers (of telemedicine) said that they would use telemedicine if they were to be reimbursed.[28] In fact, a 77.5% increase in telemedicine adoption was noted after implementation of parity in Michigan.[29]

Because telemedicine coverage and reimbursement are not federally regulated, there is considerable variability in rules, depending on the state and insurer. No 2 payers or states are alike in how they define or cover telemedicine services. Although the COVID-19 PHE has certainly brought increased coverage for telemedicine services, nationwide standardization of coverage and payment policies is still lacking. The Center for Medicare and Medicaid Services (CMS) has historically placed strict limits on criteria for telemedicine reimbursement, requiring patients receiving telemedicine services to reside in a rural area and travel to a designated health center to receive facilitated care via a synchronous live video link.[30] However, these strict limits on telemedicine services may have contributed to thwarting innovation and adoption of new technologies, thereby limiting access

TABLE VII. Coding and billing telehealth visits by time: telemedicine visits (audio and video, synchronous)

New patient CPT code	Total face-to-face time (min)	Outpatient consultation CPT code	Total face-to-face time (min)	Established patient CPT code	Total face-to-face time (min)
99201	10	99241	15	99211	5
99202	20	99242	30	99212	10
99203	30	99243	40	99213	15
99204	45	99244	60	99214	25
99205	60	99245	80	99215	40

CPT, Current procedural terminology.

to care. Even before the COVID-19 pandemic, CMS had pivoted to enhanced coverage of telemedicine.

Medicaid has generally had broader telemedicine coverage than Medicare, but rules vary from state to state. Currently, all 50 states and Washington DC provide reimbursement for some form of live video in Medicaid fee-for-service plans. Fourteen states reimburse for store and forward delivered services (not including teleradiology). Twenty-two states reimburse for remote patient monitoring.[31]

Coverage for telemedicine by commercial insurers is dependent on both state regulations and insurer-specific policies. Currently, 40 states and Washington DC have laws that govern private payer telemedicine reimbursement policies.[32] Some laws require that reimbursement be equal to in-person coverage. However, most only require parity in covered services, not reimbursement amount. Depending on how the law is written, it may provide payers with the ability to limit the amount of that coverage. Unfortunately, inconsistent coverage and reimbursement policies among the various insurers can lead to confusion, incorrect coding and billing, and denied claims.[33]

Some patients prefer to pay a convenience fee to access non-covered telemedicine services rather than come into the office for an in-person visit or forgo care. Costs vary significantly but tend to be lower than the routine charges for an in-person evaluation.[34]

Coding before COVID-19 expanded guidelines

Correct coding of telemedicine services is essential to obtaining reimbursement for care. In most cases, coding for telemedicine services was done using the corresponding codes for an in-person E/M visit (using either time or history and medical decision-making to justify the level), but with commercial insurers requiring the -95 modifier (synchronous telemedicine service rendered via a real-time interactive audio and video telecommunications system) appended. Some insurers also accepted modifier GT (modifier signifying service was provided via synchronous telecommunication) in lieu of 95. Medicare did not require a modifier for E/M services provided via telemedicine. Place of service was to be designated as "02" to signify telemedicine for all payers. Although Medicare only covered telemedicine services for established patients, some private payers permitted telemedicine visits for new patients, but not with the standard new patient current procedural terminology (CPT) codes. Instead, they required billing with code 99499 (unlisted E/M code) with place of service "02." This may have been associated with lower reimbursement than an in-person new patient visit. Because of this variability, it had always been best to check with each individual payer to determine how best to code

TABLE VIII. Coding and billing telehealth visits by time: telephone visits (audio only)

CPT code	Total visit time (min)
99441	5-10
99442	11-20
99443	21-30

CPT, Current procedural terminology.

telemedicine visits. For further information about CMS coverage of telemedicine services before COVID-19, see Table VI.

It is important to know if the site qualifies for billing a facility fee. If providing consultation services, it is important to be familiar with the rules if the referring physician and the consulting physician are participating in the telemedicine visit at the same time. In this scenario, the consulting physician would bill the E/M CPT for the visit, and the referring physician would bill a facility fee (CPT Q3014) if the visit is conducted at the referring physician's office.

Documentation is key for billing and coding whether billing is based on time or based on examination. For visits that are billed based on time, it is ideal to note start and stop times for the telemedicine visit and document risk/complexity of visit. If billing is based on time, 50% of the time must be spent on counseling and/or coordination of care. See Tables VII and VIII for coding and billing telemedicine visits by time. For visits that are based on examination, documentation requirements for the systems that were examined are the same as for an in-person visit. Please see Table IV for telemedicine physical examination coding guidance.

Coding changes during COVID-19 expanded guidelines

The COVID-19 PHE has rapidly ushered in expanded coverage/reimbursement for telemedicine services by both CMS and commercial payers.[17] One of the major changes from Medicare includes the lifting of geographic restrictions on patient location, making telemedicine services available to Medicare beneficiaries residing outside of underserved rural areas. Beginning March 6, 2020, Medicare permitted patients to receive telemedicine services regardless of location and without the need to leave their homes to visit an originating site, such as a clinic that might be used for an FV. This means that, for the first time, Medicare patients can receive telemedicine services from the comfort and safety of their own homes. CMS issued guidance to use modifier -95 to designate an E/M service as telemedicine and change the place of service for all care to the location in which

TABLE IX. Before and during COVID-19 changes based on insurance

Historical rules (pre-COVID) vs COVID-19 Public Health Emergency (COVID-19 PHE)	Medicare	Medicaid (Illinois as an example) Each state different	Aetna	BCBS (Illinois as an example) Each plan different	Cigna	Humana	UHC
Virtual check-in							
Pre-COVID	G2012	G2012	G2012	—	G2012	G2012	G2012
	POS 11	POS 11	POS 11		POS 11	POS 11	POS 11
COVID-19 PHE	G2012	G2012	G2012	—	G2012	G2012	G2012
	POS 11	POS 11	POS 11		POS 11	POS 11	POS 11
Remote evaluation of video/image							
Pre-COVID	G2010	G2010	—	—	—	—	G2010
COVID-19 PHE	G2010	G2010	G2010	—	G2010*	G2010	G2010
Telephone visit							
Pre-COVID	—	99441-3	99441-3	99441-3	—	99441-3*	—
			98966-8	98966-8			
COVID-19 PHE	99441-3; 98966-8	99441-3	99441-3	99441-3	99441-3 or usual face-to-face E/M modifier -95	99441-3 or usual face-to-face E/M modifier -95	99441-3; 98966-8
	Will be paid at face-to-face rates		98966-8	98966-8	POS 11	POS 11	OR 99201-5; 99211-5[†] modifier -95
					98966-8*		POS 11, 20, 22, 23
E-visit (digital health evaluation)							
Pre-COVID	99421-3	—	—	—	—	99421-3*	—
COVID-19 PHE	99421-3	99421-3	99421-3	99421-3	99421-3	99421-3	99421-3
	98970-2	98970-2	98970-2	98970-2		98970-2	
New patient telemedicine							
Pre-COVID	—	—	—	—	—	—	99499
							POS 02
COVID-19 PHE	Usual E/M modifier -95	Usual E/M modifier -GT	99201-5 modifier -95/GT	99201-5 modifier -95/GT	Usual E/M modifier -95/GT	Usual E/M modifier -95	99201-5 modifier -95
	POS 11	POS 02	POS 02	POS 11	POS 11	POS 11	POS 11, 20, 22, 23
Established patient telemedicine							
Pre-COVID	Usual E/M (patient location restrictions) no modifier	99211-5 modifier -GT	99211-5 modifier -95/GT	99213-5 modifier -95/GT	usual E/M modifier -95/GT	99211-5 modifier -95	99211-5 modifier -95
	POS 02	POS 02	POS 02	POS 02	POS 02	POS 02	POS 02
COVID-19 PHE	Usual E/M modifier -95	Usual E/M modifier -GT	99211-5 modifier -95/GT	99213-5 modifier -95/GT	Usual E/M modifier -95/GT	Usual E/M modifier -95	99211-5 modifier -95
	POS 11	POS 02	POS 02	POS 11	POS 11	POS 11	POS 11, 20, 22, 23

	Payment parity during PHE — COVID-19 PHE	Waived cost-sharing for telehealth during PHE? — COVID-19 PHE	Date range for COVID-19 PHE telehealth expansion (subject to modification)
	Yes. Telephone visits will also be reimbursed at face-to-face rates	Waived by CMS for care resulting in COVID testing when billed with modifier -CS‡	March 9, 2020—PHE end
	Yes	Yes, if in-network (March 31 to June 4, 2020)	March 31, 2020, to August 4, 2020
	Yes	Yes, if in-network (March 19, 2020, to June 30, 2020)	March 19, 2020, to December 31, 2020
	Yes	Yes, if COVID-related (Yes, through July 31, 2020)*§	March 2, 2020, to July 31, 2020
	Yes	Yes	February 4, 2020—PHE end (February 4, 2020, to December 31, 2020)*
	Per current policy	Yes, if in-network	March 15, 2020, to September 30, 2020

CMS, Center for Medicare and Medicaid Services; E/M, evaluation and management; UHC, United Healthcare.
*Medicare advantage only.
†Commercial only.
‡Providers may waive cost share at their discretion.
§Individual and family plans.

the service would have ordinarily been provided instead of "02," thus enabling payments to achieve parity with in-person rates instead of being reimbursed at the lower facility rates. Although CMS itself is not waiving the cost-sharing for beneficiaries during the COVID-19 PHE, the Office of the Inspector General policy statement informed practitioners that they will not be sanctioned for choosing to reduce or waive a patient's cost-share obligations.[35] During the COVID-19 pandemic, Medicare has continued to allow telemedicine visits to be billed either by E/M (with history, physical examination, and medical decision making, as per a normal in-person office visit) or by time (if billing is based on time, 50% of the time must be spent on counseling and/or coordination of care, as per a normal in-person office visit). Please see Table IV for telemedicine physical examination coding guidance and Tables VII and VIII for coding and billing telemedicine visits by time. Finally, Medicare temporarily has permitted new patient codes to be billed for telemedicine visits and allowed telephone visits to be reimbursed at face-to-face rates, enabling virtual care for those patients without access to video technology.

After weeks of rapidly changing guidance from commercial payers, many have now followed CMS's lead and adopted many of the same telemedicine coverage expansions. This has interestingly resulted in telemedicine billing/coding guidance that is significantly more uniform than before COVID-19. Many commercial payers are now covering new patient visits via telemedicine. In addition, many have issued guidance to bill using the place of service "11" instead of "02," along with modifier -95 or -GT. In many (but not all) cases, this will result in payments that achieve parity with in-person rates. See Table IX for Pre- and During-COVID-19 changes based on insurance. Some states without coverage and payment parity laws have issued executive orders temporarily mandating coverage (and in some cases, payment) parity for telemedicine services provided for state residents.[36] It remains to be seen if the increased adoption of telemedicine resulting from these changes will be maintained after COVID-19 or if coverage and parity policies return to baseline. See Table X for examples of telemedicine coding and billing.

EDUCATING CLINICIANS ON TELEMEDICINE ADOPTION

Past data have shown that health care systems average a time period of 23 months to implement digital health care solutions.[37] With the mounting pressure to preserve clinical operations remotely during the COVID-19 pandemic, many health care systems were faced with implementing telemedicine within a few weeks. Systems that had already identified superusers and that had used telemedicine to address medical care access issues were quick to expand their telemedicine services. For any health care system, key factors of successful implementation include stakeholder engagement, end user buy-in, effective educational delivery programs, and soliciting feedback.[37] Preparing clinicians for implementing telemedicine involves an understanding of how telemedicine affects various aspects of the traditional clinic workflow, which will look different for a large health care system versus academic setting versus allergy/immunology private practice[38] (see Table VI).

In addition to these components of education, clinicians will require access to information regarding the most suitable telemedicine platform for their current needs. They expect to be able to access this information quickly as it rapidly changes during and after the COVID-19 pandemic. Platforms will differ on the breadth of data security and privacy that is offered and will vary in their ability to be integrated within the EMR available to the clinician for documentation and billing.

FEDERAL CHANGES WITH COVID-19

Federal regulators announced another set of regulatory changes and waivers, particularly relating to telemedicine, in response to the growing pandemic crisis throughout the United States. These changes are described in this article's Online Repository at www.jaci-inpractice.org.

MALPRACTICE AND CYBER LIABILITY INSURANCE

Clinicians should check with their own malpractice insurance carriers about coverage for telemedicine visits. While confirming, it is recommended to check into new and follow-up patient coverage and coverage for practicing telemedicine across state lines if that is needed. Clinicians should obtain written confirmation of the policy. This should be assessed now and after the COVID-19 pandemic as regulations may change.

While inquiring into malpractice insurance, clinicians may also want to look into cyber liability insurance coverage.[39] This is critical to managing violations in patient data. Breaches may come in the form of data being hijacked, inappropriately distributed or uncovered, or held for ransom. Inadvertent data infringement, such as a lost tablet or laptop with unencrypted data visible, may also occur. Both small and large practices have fallen victim to cyber theft.[40]

With telemedicine, HIPAA and security is something to keep in mind as protected health information is exchanged regularly[41] and arguably more often since the COVID-19 pandemic.

During the pandemic, many states have added protections under their "Good Samaritan" laws, and the Federal Government, through the CARES Act: Section 3215. CARES Act — Congress.gov[42] has added limited protections for hospitals and clinicians during this health care emergency.

STATE SPECIFIC ISSUES/PROVIDING CARE ACROSS STATE LINES

The practice of medicine has become progressively more complex in the last decade as increasing regulation and payer restrictions/policies have encroached on the physician-patient relationship. Nowhere is this clearer than at the cutting-edge application of technology and health care delivery. Telemedicine is no different. Before COVID 19, only approximately 37 states had signed on to the consortium making licensing for telemedicine visits across state lines easier to obtain. Within each state there might have been multiple hurdles to overcome, boards to interact with, specific technology requirements, and payer specific requirements as well. This process has been accelerated with the COVID-19 pandemic, and many regulatory and payer issues have been waived or modified to allow a rapid response to changing practice logistics, such as eliminating licensing requirements for out-of-state telemedicine visits until the COVID-19 pandemic emergency has diminished.

Upon the rescinding of federal and state emergency orders related to COVID-19, these requirements may revert back to their prior complexity or continue to exist in a partially modified form. It is therefore advisable that all of these bodies be consulted before beginning/continuing the practice of telemedicine to ensure proper care, fair reimbursement, avoidance of unforeseen medicolegal issues, and to provide the best care for our patients. It is also advisable that clinicians regularly check laws, legislative agendas, best practice recommendations, and payer policies to ensure that the practice continues to be compliant. This section will provide information for approaching this process and cover regulatory issues at the state level, but not reimbursement or technology requirements.

Efforts are being made by the Interstate Medical Licensure Compact Commission[43] (a branch of the Federation of State Medical Boards that joins 29 states, the District of Columbia and the Territory of Guam), to continue expansion to other states as they assist physicians with their telemedicine licensing needs. This is an excellent resource for ongoing formation regarding licensure. Upon expiration of current emergency orders removing barriers to telemedicine licensure and requirements, the lack of license portability will continue to be a barrier. There is an expedited process for licensing board-certified physicians with no background issues. But physicians practicing in multiple states must adhere to a variety of state-specific medical practice regulations, and there are annual license renewal fees for each state license. There is no national licensure at present. The exception to this is patients and clinicians working with the Veterans Administration system, where rules were in place effectively bypassing state licensure laws.[44] Please see the specific licensing issues in this article's Online Repository at www.jaci-inpractice.org.

HIPAA CONCERNS

It is important to maintain HIPAA compliance in a telemedicine visit in the same manner as an in-person clinic visit.

HIPAA compliance in telemedicine

Medical professionals often mistakenly believe that communicating electronic protected health information (ePHI) is acceptable when the communication is directly between the physician and the patient. Often, little regard is given to the method of communication that is used for communicating ePHI. Medical professionals who wish to comply with the HIPAA guidelines on telemedicine must adhere to rigorous standards for such communications to be deemed compliant. HIPAA requires that ePHI data be encrypted when they are transferred.[5] HIPAA also directs that a telemedicine vendor must monitor data that are stored during transfer.

Lack of privacy and security standards plays an important role in the legal challenges facing telemedicine and may have considerable implications for the acceptance of telemedicine services.[45] Any transmissions via video or internet protocol should be encrypted to ensure security.[46] Internet protocol encryption in other settings, such as private networks, is also highly recommended. Any medical records, faxes, or communications associated with telemedicine visits should also be held to the same HIPAA privacy and security standards that apply in a standard in-person clinical office environment.[47]

TABLE X. Examples of telemedicine coding and billing

Example 1: new patient	
Telemedicine visit type	Online synchronous video
Patient visit type	New
Chief complaint	Multiple food allergies, requesting second opinion regarding dietary management, review of emergency action plan
Diagnosis	Multiple food allergies
Treatment/management	Plan for multiple food allergies developed with discussion of dietary management and review of emergency action plan
Visit duration	35 min, >50% spent in counseling/coordination of care

Example 1: billing options before and during COVID-19

	Option 1	Option 2
Insurance	Private	Medicare
Billing choices	Unlisted E/M code (new patient E/M during PHE expanded access)	Time (history and medical decision making)
CPT code	99499 (99203 during PHE expanded access)	99203 (during PHE expanded access ONLY, otherwise not permitted)
Modifier	95 or GT (depending on payer)	None required (95 during PHE expanded access)
Place of service code	02 (11 during PHE expanded access)	02 (11 during PHE expanded access)
Originating site (patient's physical location) bills	N/A	CPT Q3014 (originating site not required during PHE expanded access)

Example 2: established patient

Telemedicine visit type	Online synchronous video
Patient visit type	Established
Chief complaint	New onset pruritic rash
Diagnosis	Atopic dermatitis
Treatment/management	Emollients and triamcinolone 0.1% ointment
Visit duration	15 min, >50% spent in counseling/coordination of care

Example 2: billing options

	Option 1	Option 2
Insurance	Private	Medicare
Billing choices	Time (history and medical decision making)	Time (history and medical decision making)
CPT code	99213	99213
Modifier	95 or GT (depending on payer)	None required (95 during PHE expanded access)
Place of service	02 (11 during PHE expanded access)	02 (11 during PHE expanded access)
Originating site (patient's physical location) bills	N/A	CPT Q3014 (originating site not required during PHE expanded access)

CPT, Current procedural terminology; *E/M*, evaluation and management; *GT*, modifier signifying service was provided via synchronous telecommunication; *PHE*, Public Health Emergency.

Third-party data storage

HIPAA dictates that a telemedicine vendor must monitor data, such as ePHI, stored during transfer. Therefore, telemedicine vendors have been required to provide customers with a business associate agreement (BAA). A BAA must include methods used by the third party to ensure the protection of the data and provisions for regular auditing of the data's security. Video conferencing platforms such as FaceTime, Google Hangouts (Google, Mountain View, CA), and Skype do not have a BAA and thus previously did not fully comply with HIPAA. Some small practices use these platforms for telemedicine. However, some insurers will not pay for telemedicine care that uses the non-BAA platforms, and some large organizations will not allow their doctors to use these platforms.[48] In addition, copies of communications sent by SMS, Skype, or email remain on the service clinicians' servers and contain individually identifiable health care information that is not encrypted. This ePHI is also not considered HIPAA compliant.[49]

Technologies for HIPAA compliance

There are a variety of vendors that provide telemedicine technology (Table I). Because each technology changes frequently, it is important to visit each vendor's website for information about current offerings. It is important to check with each company to determine HIPAA compliance and encryption and to verify it with an IT security expert.[50] Other technologies to consider using include intrusion detection systems, web application protection, and log management.

Patient privacy concerns

Patients have every right to be concerned about privacy and question how their information will be handled during a telemedicine visit. Clinicians should be prepared to educate patients about the steps taken for HIPAA compliance and ways to ensure the privacy of other confidential information. It is important to let patients know that technology is designed for this purpose and that clinicians take this obligation under HIPAA very seriously.[4]

COVID-19 HIPAA-specific information

The emergency declaration by the President of the United States on March 15, 2020, removed some of the HIPAA and state-related barriers that required recording all telemedicine visits and that those copies be maintained in an archive as part of the medical record. For the time being, CMS has also noted that accidental HIPAA violations that occur in the course of caring for patients via this method will not be prosecuted, as long as the clinician was acting in the best interest of the patient. Many state governors have released similar letters providing similar policies for Medicaid in their respective states. With the declaration, the originating site can be the patient's home, nursing homes, hospital outpatient departments, and other settings and across state lines.[11]

To immediately allow clinicians to start telemedicine services, HHS Office for Civil Rights (OCR) will exercise enforcement discretion and waive penalties for HIPAA violations against health care clinicians who serve patients in good faith through everyday communications technologies such Zoom (Zoom Video Communications, Inc., San Jose, CA), Skype, and Face-Time, among others.[51] Telemedicine visits are also more flexible in that the video solution has an exception for HIPAA security rules requiring BAA for technology. This change now also supports platforms such as FaceTime, Google Hangouts, and Skype, which do not offer a BAA. Nevertheless, best practice is to work toward the use of a HIPAA-compliant video solution as soon as available.

This emergency declaration regarding telemedicine requirements is to extend through the COVID-19 PHE. At this point, it remains unclear how long these changes will remain in effect or what form they will take once the COVID-19 emergency ends. To dispel any confusion, clinicians need to remember that HIPAA regulations are still in place at this time; it is the enforcement of these regulations that has been temporarily relaxed.

CONCLUSION

Telemedicine has been shown to increase access to and decrease the cost of medical care.[5,8,10,46,52] Many of the types of patients that we care for in the field of Allergy and Immunology can be helped using telemedicine. Past examples include the use of telemedicine for asthma and antibiotic allergy and stewardship.[23-26] We and our patients are therefore uniquely positioned to take advantage of and benefit from telemedicine.

Until recently, however, there was no widespread adoption of telemedicine. Therefore, a work group from the HITE Committee of the American Academy of Allergy, Asthma, and Immunology was formed to investigate the baseline use and needs of the allergy and immunology community with regard to telemedicine. Since that time, the COVID-19 pandemic has led to an unprecedented heightened need for telemedicine from private practices to academic centers throughout the country.[2,3,53] There is now an opportunity to integrate telemedicine into the Medical Education curriculum and experience telemedicine at all levels. It remains to be seen if the changes in technology, regulation, and reimbursement of telemedicine will be maintained long term.

HITE is planning to longitudinally follow the adoption of telemedicine by allergy/immunology clinicians in the context of COVID-19 and afterward. Our goal is to continue the development of tools to assist allergy/immunology clinicians with adoption of telemedicine and to help push the boundaries of telemedicine use by the allergy and immunology community.

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ONLINE REPOSITORY

SPECIFIC TECHNOLOGY GUIDELINES

The technical requirements for telemedicine are based on the type of communication platform, goal of the visit, and whether or not peripherals (video otoscope, electronic stethoscope, etc.) will be used in the visit. An internet- or cloud-based direct-to-patient setup is accomplished with an internet connected device (laptop, tablet, smartphone) that has a camera and a microphone. These employ an internet-based platform to connect directly with the patient via an encrypted, secure connection.[E1] The computer/tablet/smartphone choice is based on the platform requirements and need for integration with other software running simultaneously during use. These systems are usually offered through a third-party vendor and may require a business associate agreement (BAA). Integration with an electronic health record may or may not be important to a user based on need.

Central to an internet-based telemedicine practice is a secure broadband internet connection. The amount and speed of the internet connection will determine the video quality and amount and speed of data transfer. The number of users at one time will also affect these requirements. Guidelines from the Federal Communications Commission (FCC) suggest a range of 10 mbps to >100 mbps based on the size of the group and number of users (FCC paper, Health Care Broadband in America 2010). Most physician offices will have business level (100 mbps to 1 gbps) internet connections for today's office usage that will support high-definition video connections. Remote users (from home) will need to verify speeds as consumer speeds are sometimes slower.

FEDERAL CHANGES

OIG eliminates sanctions for routine waiver of copayments and deductibles related to telemedicine

On March 17, 2020, the Health and Human Services Office of Inspector General (OIG), the primary enforcement agency for crimes and violations involving the Medicare program, announced that it would not pursue sanctions or penalties against any provider who routinely waived or reduced copayments or deductibles for telemedicine services during the COVID-19 crisis. Such waivers or discounts are typically subject to stiff penalties under the Anti-Kickback Statute, Civil Monetary Penalty Law, and the OIG's exclusions authority.

OCR will not impose penalties on HIPAA violations with regard to telemedicine services

Consistent with the relaxation of other regulatory frameworks impacting telemedicine services, the Health and Human Services Office of Civil Rights (OCR) announced that it would not seek penalties on providers who violated Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations in providing telemedicine services to patients during the COVID-19 crisis. Even where permitted by federal or state law, most telemedicine interactions had to be provided through proprietary platforms that included additional privacy and security safeguards to comply with HIPAA rules. OCR's announcement allows providers and patients to use a variety of common commercial products that are available such as smartphone apps, including Skype, Google Hangouts, Facebook Messenger video chat (Facebook, Inc., Menlo Park, CA), and Apple FaceTime.

These were specifically referenced as suitable tools, whereas other platforms, such as Twitch (Twitch Interactive, a subsidiary of Amazon.com, Inc., Seattle, WA), TikTok (ByteDance Ltd., Beijing, China), and Facebook Live were considered inappropriate and still prohibited because of their public-facing nature.

Enforcement of HIPAA provisions during the COVID-19 pandemic

The Secretary of Health and Human Services further announced that, starting March 15, 2020, and during the duration of the state of emergency caused by COVID-19, enforcement of sanctions and penalties for certain HIPAA provisions would be waived for hospitals.[E2] These provisions included the requirement to obtain a patient's agreement to speak with family members or friends involved in the patient's care, the requirement to honor a request to opt out of the facility directory, and the requirement to distribute a notice of privacy practices. Other provisions affected included the patient's right to request privacy restrictions and the right to request confidential communications. In summary, the enforcement of these provisions will be relaxed during this national public health emergency.

The National Consortium of Telemedicine Resource Centers[E3] and Federation of State Medical Boards[E4] are resources for up-to-date information on the rapidly changing rules and regulations at this time.

Prescribing

There have been temporary changes in the Ryan Haight Act[E5] allowing for e-prescribing of controlled substances for up to 90 days under certain circumstances.

STATE LICENSING RULES

Providers who wish to practice in other states can apply for full licenses from those states. However, state boards can issue a special purpose license, telemedicine license or certificate, or license to practice medicine across state lines to allow for the practice of telemedicine. These types of special licenses allow practice under specified terms. See Federation of State Medical Boards: Telemedicine Policies — Board by Board Overview[E6] and Center for Connected Health Policy: State Telehealth Laws & Reimbursement Policies Fall 2018.[E7]

Some states have also adopted a separate license for the practice of telemedicine.[E8] This is a rapidly changing area and a number of states have pending telemedicine legislation. At least 9 states have special licenses related to telemedicine.

Texas has an Out-of-State Telemedicine License that limits practice to 2 types of services: follow-up for a patient where the majority of care was rendered in another state and interpretation of diagnostic testing, but results must be reported to a fully licensed physician practicing in Texas. This is described in the Texas Medical Association: Texas Laws and Regulations Relating to Telemedicine (white paper).[E9]

A License by endorsement grants licenses to out-of-state providers whose states have equivalent standards. This is rare, but may become more common. Three states (Maryland, New York, and Virginia) and Washington DC provide reciprocity to bordering states. Alabama and Pennsylvania have agreements with other states to grant licenses to out-of-state physicians who have licenses in states that reciprocally accept their home state licenses. In Connecticut, an out-of-state physician can obtain an

in-state license based on his or her home state standards. State-by-state licensing guidelines are noted in this reference.[E8] Interstate compacts as mentioned in the overview are available in 29 states at present. This is an evolving area.

Many states have both a state medical board and a state board of pharmacy, and approval or licensure from both may be required. The Federation of State Medical Boards (FSMB)[E4] has a comprehensive list of known requirements by state statutes. The FSMB also has a model policy for the appropriate use of telemedicine technologies in the practice of medicine available on the website. In addition, the Centers for Medicare & Medicare Services has specific definitions and requirements for the use of telemedicine that can be found at www.cms. gov[E10] and www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/NLNProducts/downloads/Telehealth Srvcsfctsht.pdf.[E11]

As not all states have a separate state pharmacy board involved in regulation of prescription writing, it is advisable to seek out individual state requirements by contacting these boards in the provider's state. For example, at the time of publication, the state of Kansas has no specific laws regarding telemedicine. Guam requires only that physicians be licensed somewhere in the United States. Many states, including Texas, require that the physician be licensed in the state where the patient is located. Some states like Maryland grant reciprocity to patients residing in adjoining states (see www.fsmb.org).[E4]

Many state medical societies or licensing boards have already provided resources and step-by-step guidelines to adopt the practice of telemedicine. Some excellent examples are the state of Pennsylvania's website[E12] and the Texas Medical Association Website website.[E13] Comprehensive infographics and information/requirement summaries can be obtained at the Center for Connected Health Policy.[E14]

A very important issue is that many states require informed consent for the practice of telemedicine. Requirements for informed consent vary by state and should be cleared by the providers state medical board.

Additional documents and resources have been provided by the AAAAI[E15] and the ACAAI.[E16]

HIPAA DEFINITION

HIPAA is United States legislation that provides data privacy and security provisions for safeguarding medical information. It is designed to reduce health care fraud and abuse by setting industry-wide standards for health care information on electronic billing and other processes. It also requires the protection and secure handling of specific patient health information. This is addressed by the Privacy Rule and the Security Rule and is highly relevant to telemedicine.[E17]

The HIPAA Privacy Rule establishes national standards to protect individuals' medical records and other personal health information and applies to health plans, health care clearinghouses, and those health care providers that conduct certain health care transactions electronically.[E17]

Whereas the HIPAA Privacy Rule deals with Protected Health Information (PHI) in general, the HIPAA Security Rule deals with electronic Protected Health Information (ePHI), which is essentially a subset of what the HIPAA Privacy Rule encompasses (Table IX).[E17]

BAA

A business associate is any individual or entity that performs functions or activities on behalf of a covered entity that requires the business associate to access PHI. This individual or organization may also provide services to a covered entity.[E18]

Examples of Business Associates:

- A third-party administrator that assists a health plan with claims processing.
- A certified public accountant firm whose accounting services to a health care provider involve access to protected health information.
- An attorney whose legal services to a health plan involve access to protected health information.
- An independent medical transcriptionist that provides transcription services to a physician.
- A pharmacy benefits manager that manages a health plan's pharmacist network.

There are some exceptions to the business associate standard, where "a covered entity is not required to have a business associate contract or other written agreement in place before protected health information may be disclosed to the person or entity."[E18]

These exceptions include but are not limited to the following situations:

- Disclosures by a covered entity to a health care provider for the treatment of the individual.
- PHI collection and sharing by a health plan that is a public benefits program, such as Medicare.
- Disclosures to a health plan sponsor, by a group health plan, the health insurance issuer, or health maintenance organization that provides health insurance benefits or coverage for the group health plan.
- With individuals or organizations that are a conduit for PHI, like the US Postal Service.

INTRUSION DETECTION SYSTEMS

Intrusion detection systems run the gamut from complex host-based detection to lightweight network-based detection. Generally, any credible intrusion detection systems will provide core functionality designed to detect known inappropriate activity based on known signatures.[E19] An option to protect provider internet-facing websites and applications is to implement a Web Application Firewall (WAF). The WAF can provide inline protection from invalid/malformed requests made against the provider website or simply monitor web requests, alerting when these inappropriate requests are encountered.[E19] Log management solutions provide the broadest coverage in regard to HIPAA mandates. There are a myriad of solutions that provide complex query languages that enable skilled users to mine logs for signs of compromise, as well as any activity that may indicate a HIPAA mandate may have been broken.[E19]

ADOPTION OF TELEMEDICINE IN MEDICAL TRAINING PROGRAMS

Before the COVID-19 pandemic, telemedicine training of medical students and postgraduate trainees varied by region. Although some medical schools and training programs, primarily in rotations serving rural populations, exposed students and residents to telemedicine, the exposure was not standardized or widespread. In addition, accreditation programs did not provide

clear guidelines for how residents and allergy/immunology fellows could be supervised in these encounters. Nevertheless, research suggests that medical students who are exposed to telemedicine during medical school may promote development of clinical competencies.[E20,E21] Accreditation programs such as the Accreditation Council for General Medical Education (ACGME) and Liaison Committee on Medical Education have supported the inclusion of telemedicine within medical student and resident/fellow education.[E22] During the COVID-19 pandemic, the ACGME further defined that supervising physicians for allergy/immunology fellows and residents may include monitoring of the patient care through appropriate telecommunication technology, relaxing rules that the supervising physician be physically present with the resident or fellow.[E23] Of note, for medical reimbursement, billing based on clinical time does not include online or telephone services that are provided by the resident or fellow, if the supervising medical attending is not concurrently participating at the time of the visit.

INTEGRATION WITH EMRS

Telemedicine can be performed with or without electronic medical record (EMR) integration. Without integration, a provider can simply use the telemedicine software and EMR side by side. Integration offers a seamless workflow. There are various avenues for EMR integrations employing Health Level Seven (HL7) standards or Application Program Interface (API). HL7 defines the technical specifics for sending messages containing health data to and from medical software. Many telemedicine vendors have implemented these standards in their own way. However, they may not be readily customized to integrate into allergy/immunology specific software. It can be costly and time consuming to adapt these to allergy/immunology specific applications. API is specific programming allowing the creation of applications that access the features or data of another service. If it is offered by the telemedicine vendor, it is simpler to use a vendor that offers API.[E24]

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