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Position Statement

American College of Allergy, Asthma & Immunology Position Paper on the Use of Telemedicine for Allergists

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The integration of telecommunications and information systems in health care first began 4 decades ago with 500 patient consultations performed via interactive television. The use of telemedicine services and technology to deliver health care at a distance is increasing exponentially. Concomitant with this rapid expansion is the exciting ability to provide enhancements in quality and safety of care. Telemedicine enables increased access to care, improvement in health outcomes, reduction in medical costs, better resource use, expanded educational opportunities, and enhanced collaboration between patients and physicians. These potential benefits should be weighed against the risks and challenges of using telemedicine. The American College of Allergy, Asthma, and Immunology advocates for incorporation of meaningful and sustained use of telemedicine in allergy and immunology practice. This article serves to offer policy and position statements of the use of telemedicine pertinent to the allergy and immunology subspecialty.

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Introduction

In 1972, Murphy and Bird[1] conducted 500 patient consultations via interactive television, and the first formal definition of telemedicine was born. In 1974, Bird defined telemedicine as "the practice of medicine via an interactive audio-video communication system."[1] Federal health programs and rural communities were some of the first to adopt telemedicine as a means to improve access to patient care. However, telemedicine has traditionally not been considered part of mainstream medical practice largely because of a combination of technology limitations and federal regulations. With the advent of the internet and widespread computer and smartphone use, telemedicine can support high-quality at-a-distance health care delivery. Variations in regulations, including discrepancies between state and federal laws and questions around the quality of care delivery, still exist. Despite this, most health plans offer some reimbursement for telemedicine services. According to the American Telemedicine Association,

more than 15 million Americans received some form of medical care remotely in 2015, with a projected increase to 158.4 million by 2020.[2]

The sustainability of health care systems is a matter of continued concern.[3] According to projections by the Association of American Medical Colleges, the nation will be short more than 90,000 total physicians by 2020 and 130,000 physicians by 2025.[4] With approximately only 3000 active allergists nationwide (adapted from *American Academy of Allergy, Asthma, and Immunology Report on the Allergy and Immunology Physician Workforce, 1999-2009/10* [5]), telemedicine offers the opportunity to provide scalable, longitudinal, high-quality care to patients.

Telemedicine technologies have been proven to work and are considered a viable option for health care delivery.[6] With the availability of low-cost computing and digital telecommunications in the 1980s, telemedicine became practical and feasible.[7] Unfortunately, since then, adoption of widespread telemedicine practice has been slow. Holistic implementation approaches are therefore urgently needed.[8]

Methods

The American College of Allergy, Asthma, and Immunology appointed a telemedicine task force, composed of allergists with telemedicine experience, dedicated to defining the scope and practice of telemedicine for allergists. A PubMed literature search using the keywords *telemedicine* and *telehealth* was performed

and articles reviewed from publication dates of 1990 to 2017. Position papers from other medical specialties were additionally reviewed and analyzed for relevance to the use of telemedicine in allergy and immunology practice. For the purposes of this position paper, the terms *telemedicine* and *telehealth* will be used interchangeably.

Definition of Telemedicine

Telemedicine is defined as the use of technology to deliver health care, health information, or health education at a distance. The American Medical Association (AMA) further defines this to include face-to-face evaluations, either in person or virtually through real-time audio and video technology.[9] According to the Federation of State Medical Boards, "generally, telemedicine is not an audio-only, telephone conversation … it typically involves the application of secure videoconferencing or store-and-forward technology to provide or support healthcare delivery by replicating the interaction of a traditional encounter in person between a provider and a patient."[10]

Types of Telemedicine

Store and Forward (Asynchronous)

Asynchronous telemedicine is communication with a patient that is separated by distance and time. The Department of Veteran Affairs defines this as "the acquisition and storing of clinical information, e.g. data, image, sound, video, that is then forwarded to (or retrieved by) another site for clinical evaluation." Examples include e-messaging with a patient, e-consultations (where another physician may request a second opinion or formal consultation through a secure portal to send and receive patient medical records for review), and the use of peripheral devices (eg, otoscope, stethoscope) that record images and/or sounds and transmit them to the treating physician. Considerations for the practice of asynchronous telemedicine include establishment of the physician-patient relationship and the use of Health Insurance Portability and Accountability Act (HIPAA)–compliant, secure modes of communication.

Real-Time Video (Synchronous)

Synchronous telemedicine consultations use video-conferencing to connect the physician and patient. The location of the patient is defined as the *originating site* and can be at a satellite office with a telefacilitator or from the patient's home directly through the patient's smartphone, tablet, or computer. The location of the physician is defined as the *distant site*.[11] This mode of telemedicine is meant to enable the physician to conduct a medical consultation as they would in person.

Benefits

High-quality telemedicine provided by allergists can improve access, especially in those with chronic disease. It has been shown to improve health outcomes, improve access to care, increase scope and coverage, and have a positive effect on the environment and may be cost-effective.

Costs

Asthma cost the United States approximately $56 billion in medical costs, lost school days and workdays, and early deaths in 2007.[12] Rhinitis may cost our society as much as $5 billion per year in medication costs and loss of productivity.[13] On the basis of observations in other medical specialties, telemedicine may serve as a viable option to reduce these costs. A 2014 study found that an estimated 100 million e-visits across the world would result in as much as $5 billion in savings for the health care system.[14] As many

as three-quarters of those visits could be from North American patients.[14]

Another cost-reducing benefit of the use of telemedicine was seen in telestroke services. The Mayo Clinic telestroke program found that the patient treated in a telestroke network, consisting of 1 hub or host hospital and 7 spokes or outlying hospitals, reduced costs by $1,436 and gained 0.02 years of quality-adjusted life-years during a lifetime compared with the patient receiving care at a rural community hospital.[15]

Telehealth technologies used by the Veterans Health Administration have shown greater efficiency and patient satisfaction in the management of chronic disease. The Veterans Health Administration's care coordination/home telehealth program saw a 25% reduction in the number of bed days, a 19% reduction in the number of hospital readmissions, and a mean increase in patient satisfaction scores of 86%.[16]

Access

Access to health care is also improved with telemedicine. According to a 2015 study, the mean no-show rate for physician appointments was upwards of 20%, with a mean cost per patient of approximately $200.[17] Telemedicine technologies can connect patients with the clinician without having to incur long travel times and associated expenses, particularly if they do not have ready access or are unwilling to travel. Beyond the rural setting, telemedicine may aid in facilitating care for underserved patients in rural and urban settings.[18] Sites located in the prison environment or school environment offer immediate access to health care. Democratic State Representative Kip Kendrick, who helped pass a Missouri law that allows Medicaid payments for telemedicine in schools, stated that school telehealth will be significant in terms of children's health, keeping them in school and improving educational outcomes.[19]

Although patients with Parkinson disease do better under the treatment of a neurologist, research indicates that fewer than half of Medicare patients with Parkinson disease see a neurologist because of lack of access.[20] Telemedicine could offer improved access to care. A national randomized clinical trial of virtual house calls for people with Parkinson disease found great interest in virtual access, with 11,734 individuals visiting the study's website and 927 individuals submitting electronic interest forms.[21]

Quicker access has also been found with forms of telemedicine in the Indian health service. A comparison study of patients waiting for an evaluation by an ear, nose, and throat specialist before and after the introduction of telemedicine in an Alaskan community saw significant decreases in the number of new patients waiting 5 months or longer for consultation (47% before vs 8% after) and the mean wait time for an appointment (4.2 vs 2.9 months).[22] In asthma care, there is evidence that patients have better outcomes if there is involvement of medical professionals who specialize in managing asthma.[23] Unfortunately, patients with the greatest need for asthma specialists often live in underserved areas, such as rural or inner-city communities, where asthma specialists are not always available. This disparity in access to care presents an opportunity for remote asthma management using telemedicine to improve access.[24]

The nature of the specialty of allergy lends itself to the use of synchronous video technology. IgE-mediated reactions typically last less than 24 hours, whereas the median wait time to see a specialist is 39 to 76 days.[25] This large discrepancy in timing from development of symptoms to evaluation can lead to drop off with patients opting to seek care elsewhere or not at all. Real-time video consultations can serve to improve access to care and more timely evaluation and treatment. For existing patients, most practices rely on after-hours on-call telephone coverage to manage more acute

situations, and treatment recommendations are limited because of the inability to examine the patient. Video technology enables the physician to conduct key components of a physical examination during an urgent event. Follow-up visits can allow for chronic disease management, medication refills, educational sessions, test interpretation, and acute or chronic disease state assessment.

Telemedicine can be used as a means to offer specialist care to patients from a wider geographic region, provided the physician has licensure in the state where the patient is located. A patient may have a video visit with an allergist for an initial consultation and assessment, and care may be continued through real-time video visits and/or a combination of in-person and real-time remote video care from an originating medical site or the patient's home. Practitioners should conduct the history as they would in person, in accordance with established practice parameters. Physical examination through video may be enhanced with the use of peripherals, such as electronic stethoscope, otoscope, and ophthalmoscope. Telemedicine may lead to the added benefit of new patient recruitment to an allergy and immunology practice.

A primary care physician may use video technology to connect with an allergist for a subspecialist opinion or second opinion. This technology provides an opportunity for care coordination and appropriate use of in-person allergist consultations if clinically indicated. This consultation may be conducted in a synchronous format with the primary care office as the originating site or through asynchronous communication and e-consultation. In-person evaluation should be considered where appropriate.

Health Outcomes

Studies have found that the use of telemedicine can improve overall health outcomes. Children with asthma seen by telemedicine or in-person visits can achieve comparable degrees of asthma control.[24] Telemedicine as a case management tool improves outcomes in older patients with diabetes and limited access to care.[26] Improved outcomes have also been found in other chronic diseases, such as congestive heart failure, stroke, and chronic obstructive pulmonary disease.[27]

Patient Satisfaction

Participants in a recent survey on primary care video visits stated preference of video visits to office visits, raising costs and transportation as the main considerations for favoring video visits.[28] All participants were satisfied and voiced interest in future video visits. Another recent survey found that patients who used MinuteClinic telehealth visits reported high satisfaction, identifying convenience and perceived high quality of care as contributors.[29]

Environmental Impact

Another global benefit of telemedicine is the positive effect on the environment. A study looking at the telemedicine consultation database at the UC Davis Health Systems found a reduction in pollution and greenhouse gas emissions as a result of reduced travel distances.[30] This reduction in carbon dioxide emissions alone was equivalent to the 1-year emissions for electricity production of 271 mean 4-member households.[31]

Scope and Coverage

Today, greater than 90% of Americans have internet access, and telemedicine visits originating at home are legally permitted in all 50 states. Most health plans and employers cover telemedicine services, although not all reimburse at the same rate as in-person services. There is a difference between coverage parity and payment parity. Coverage parity is defined as a requirement that telehealth visits be covered whenever in-person visits would be covered. Payment parity requires that the amount of reimbursement be the same. Reimbursement, however, differs by state and medical specialty. Thirty states and the District of Columbia have laws requiring insurance companies to reimburse for telehealth services (http://www.cchpca.org/). The American College of Allergy, Asthma, and Immunotherapy (ACAAI) is in support of combined coverage and payment parity.

Challenges

Integration of telemedicine into an allergy and immunology practice is not without challenges. There are many variations in state guidelines in the practice of telemedicine as it relates to prescribing and licensing. Websites that offer on-demand, episodic care for health conditions may disrupt the continuity of care between the patient and the physician and undermine care coordination. There is concern that use of certain technologies depersonalize the patient-physician relationship. Many laws and regulations that relate to reimbursement and practice of medicine were drafted before the use of telemedicine by larger markets[18] and present legal barriers that relate to medical licensure, credentialing, and privileging.

Technology

Most recently in 2014, the American Telemedicine Association developed quality standards and guidelines that have been adopted by many practices. The ACAAI advocates similar high-quality interaction when performing initial and subsequent telemedicine encounters. This emphasis on quality should be kept in mind when considering a telemedicine provider service. All efforts should be taken to use communication modes and applications that have appropriate verification, confidentiality, and security parameters. Both the professional and patient site should use high-quality cameras, audio, and related data capture and transmission equipment that is appropriate for the telehealth clinical encounter and that meet any existing practice specific guidelines.[32]

Recent surveys of physicians and hospital systems found that a 2-way video or webcam was the most commonly used telemedicine technology (70%)[33] and the most likely type in which physicians and hospitals would invest (67.1%).[34]

The organization and allergist practitioner should have a backup plan in place that outlines an alternate method of communication among sites in case of technology failure. The plan should be communicated to the patient or referring practitioner before commencement of the initial treatment encounter, and it may also be included in the general emergency management protocol.

The ACAAI also endorses the principle that equipment sufficient to support diagnostic needs be available and functioning properly at the time of the patient encounter. There should be strategies in place to address environmental elements necessary for safe use of telehealth equipment. Encounters should comply with all relevant laws, regulations, and codes for technology and technical safety.

The ACAAI recommends having infection control policies and procedures in place for the use of telehealth equipment and patient peripherals that comply with organizational, legal, and regulatory requirements. Processes should also be in place to ensure continued safety and effectiveness of equipment during ongoing maintenance. The organization must meet required published technical standards and regulations (eg, US Food and Drug Administration) for safety and efficacy for devices that interact with patients or are integral to the diagnostic capabilities of the practitioner, where applicable.[32]

Licensing

The practitioner using telemedicine technologies typically must be licensed to practice medicine in the jurisdiction where the patient receives treatment as dictated by current law.[35] Most proposals to change the medical licensing system to facilitate more telehealth encounters fall into the categories of preemption, mutual recognition, and portability or the concept of federal licensure. State medical licensing policy regarding telemedicine varies. State laws related to telehealth consultations are not consistent with respect to whether a physician may consult with a physician licensed in another state.[36] Some states have specialty licenses that allow physicians to practice across states lines for telemedicine only.[37]

Expedited compact licensure is under way in the following states: Pennsylvania, Vermont, Alabama, Arizona, Colorado, Idaho, Illinois, Iowa, Kansas, Minnesota, Mississippi, Montana, Nevada, New Hampshire, South Dakota, Utah, West Virginia, Wisconsin, and Wyoming. However, to date, 11 of the 19 adopting states are still struggling with out-of-state background checks. Currently, physicians who live in Alabama, Idaho, Iowa, Kansas, West Virginia, Wisconsin, and Wyoming can apply to be licensed in 1 of the 18 other states. These regulations and sanctions will continue to evolve over time to help simplify multistate licensure (www.imlcc.org). The ACAAI supports further expansion of expedited medical licensing in multiple states by allergists in a responsible manner for the purpose of telemedicine.

The US Congress recently introduced the Creating Opportunities Now for Necessary and Effective Care Technologies (CONNECT) for Health Act of 2017 that would allow for waiver of certain Medicare telehealth restrictions if a Centers for Medicare & Medicaid Services actuary certifies the service will maintain quality and save or not increase cost. This act would also expand the use of telehealth and remote patient monitoring (use of telecommunications tools to monitor vital signs of patients) services in Medicare. The act has the endorsement of the AMA and multiple medical specialties.

Credentialing and Privileging

Credentialing is the process used by health care organizations to obtain, verify, assess, and validate previous experience and qualifications. Privileging is the process used by organizations, after review of credentials, to grant authorization for a practitioner to provide a specific scope of patient care services.

In the context of telehealth, if a health care organization must go through the process of credentialing and privileging every time a new distant site practitioner is used in a telehealth consultation, this can create a considerable administrative burden. To alleviate this burden, The Joint Commission issued standards that allow hospitals to privilege by proxy, permitting hospitals receiving services to accept the distant site hospital's credentialing and privileging decisions.[38]

The originating site may use the credentialing and privileging information from the distant site if all the following requirements are met: (1) the distant site is accredited by The Joint Commission, (2) the practitioner is privileged at the distant site for those services that are provided at the originating site, and (3) the originating site has evidence of an internal review of the practitioner's performance of these privileges and sends to the distant site information that is useful to assess the practitioner's quality of care, treatment, and services for use in privileging and performance management.

The adoption of the privilege by proxy policy may require a change in the hospital's bylaws. It may also conflict with state laws or regulations. The ACAAI supports the decision of each organization to act in compliance with its own state laws and regulations.

Accreditations

The American Telemedicine Association has a telemedicine accreditation program for online, synchronous patient consultations. The program promotes patient safety, transparency of operations, and adherence to all relevant laws and regulations (http://www.americantelemed.org/ata-accreditation). The Utilization Review Accreditation Commission also has an accreditation program designed for organizations that provide "healthcare-related services, education, and information delivered via telecommunications technology, such as videoconferencing, remote monitoring, electronic consults, and wireless communications" (www.urac.org/accreditation-and-measurement/accreditation-programs/all-programs/teleheatlh/). Allergists interested in rolling out telemedicine services should consider accreditation through one or both of these organizations, particularly those in large group practices.

Privacy, Confidentiality, and Security

Telemedicine technology brings with it concerns about privacy, security, and confidentiality that go beyond those associated with protecting medical records. Lack of privacy and security standards play an important role in the legal challenges facing telemedicine (eg, malpractice) and have profound implications for the acceptance of telemedicine services.[39]

The ACAAI recommends organizations and physicians who practice telemedicine ensure compliance with the Health Insurance Portability and Accountability Act of 1996. Any transmissions via video or internet protocol should be encrypted to ensure security. Internet protocol encryption in other settings, such as private or semiprivate networks, is also highly recommended. Any medical records, faxes, or communications associated with telemedicine encounters should also be held to the same HIPAA privacy and security standards as apply in a standard clinical office environment.[38]

Regulations

Today telemedicine can be found in every state of the union and almost every country in the world, but in the United States it continues to be hindered by policies that are no longer functional, especially those related to rules and requirements for reimbursement and interstate licensure and practice.[27] There is a mishmash of state laws with no 2 states being the same. A state-by-state evaluation of telemedicine policies found nearly 50 combinations of requirements, standards, and licensure policies.[40] A survey found that 56% of health care practitioners practicing telemedicine say telemedicine technology is ahead of the current state medical board guidelines.[41] The ACAAI suggests state medical boards may serve as an additional resource for physicians and patients to familiarize themselves with local telemedicine regulation.

Reimbursement for telemedicine also varies by state. A survey conducted at the Academy of Integrative Health and Medicine in 2014 found that only 19% of health care practitioners had a mechanism to get paid for telemedicine services.[41] Per a 2015 report by the AMA, 46 states and the District of Columbia had some type of Medicaid reimbursement for telehealth. Twenty-one states and the District of Columbia required private insurers to cover telemedicine services as defined by those states.[42] A set of standardized, explicit codes to enable practitioners to seek reimbursement for a virtual encounter, not just for the service but the technology too, is much needed. The AMA has been working on the expansion of *Current Procedural Terminology* codes for telemedicine since October 2015.[43]

State and federal legislatures have been active in working to advance telehealth reimbursement policies. On December 13, 2016, the 21st Century Cures Act passed with broad bipartisan support

and contains several telehealth provisions, signaling a new willingness by the US Congress to expand Medicare's telehealth benefit.[44]

The American Telemedicine Association reports continuation of introduction of legislation by several states mandating private coverage of telemedicine services and Medicaid coverage for telehealth. There is also continued interest by several state medical boards to review existing policies and update them as demand increases for telemedicine services. The ACAAI supports continued efforts by state, federal, and other associations to responsibly expand telemedicine practice, including allergy and immunology practice, with ongoing assessment of regulations.

Physician-Patient Relationship

The relationship between physician and patient, especially in chronic disease settings, is important. With the demand of convenient, cost-effective health care increasing, website and mobile health applications providing episodic care for low-acuity health conditions is increasing. Depending on the state, these services allow patients and physicians to interact 24 hours a day via a 2-way video conferencing on a computer, smartphone, tablet, or telephone. Episodic telemedicine is enticing to employers and insurance companies because of cost saving associated with these sites. An e-visit typically costs approximately $40 compared with an in-person visit, which costs approximately $73.[45]

However, this type of consumer-driven health care challenges the maintenance of the patient-centered, longitudinal relationship between the patient and physician. Maintaining continuity of care is effective in improving health outcomes and essential in patient-centered care.[18] There is little research on how remote consultation websites or applications may affect continuity of patient's care.

Allergists treat a multitude of chronic diseases, and the ACAAI supports a patient-centered care approach. For direct-to-patient telemedicine, the ACAAI recommends the consulting allergist have an existing physician-patient relationship or create a physician-patient relationship through live, interactive, face-to-face consultation before the use of any asynchronous telemedicine interactions. Alternately, the allergist may be a part of an integrated health delivery system where the patient already receives care in which the allergist has access to previous medical records and is therefore able to coordinate follow-up care. For teletriage and teleconsultation where a referring practitioner ultimately manages the patient, the consulting allergist should not be required to have a preexisting, physician-patient relationship.

Position Statements

The Taskforce on Telemedicine in Allergy supports the following statements:

1. Telemedicine is a method of health care delivery that may enhance patient-physician collaborations and adherence, reduce overall medical cost, improve health outcomes, and increase access to care.
2. Telemedicine activities should account for varying literacy and technologic literacy levels and strive for ease of use in interface design, content, and language.
3. The use of telemedicine must be secure and compliant with state and federal regulations.
4. Health care practices should confirm that medical liability coverage includes a provision for telemedicine services.
5. Clinical judgment should be used when determining the scope and extent of telemedicine services provided to patients.
6. Quality assurance measures should be in place to track patient satisfaction, physician performance, and clinical outcomes

whether at an originating site or via home-based telemedicine care.
7. Live interactive video visits with allergy patients should be at the same standard of care and held to the same standards of professionalism and ethics as in-person consultations.
8. Live interactive video visits should be reimbursed at the same rate as in-person care and there should be transparency and understanding of payer reimbursement for different modes of telemedicine delivery.
9. Best practices for safety in telemedicine care delivery should be followed at all times.
10. Roles, expectations, and responsibilities of practitioners involved in the delivery of allergy care should be clearly defined.
11. Appropriate technical standards should be upheld throughout the telemedicine care delivery process and specifically meet the standards set forth by HIPPA.
12. Time for data management, quality processes, and other aspects of care delivery related to telemedicine encounters should be accounted for by the organization and recognized in value-based care delivery models.
13. Telemedicine use for allergy care is likely to expand with broader telehealth applications in medicine; further research into effect and outcomes is needed.
14. A streamlined process for multistate licensure would improve access to specialty care while allowing states to retain individual licensing and regulatory authority.

Conclusion

Telemedicine will continue to increase and evolve with the increase in demand. The ACAAI supports telemedicine services designed and dedicated to providing high-quality patient care, including making every effort to collect accurate and complete clinical information during an encounter and having mechanisms to facilitate continuity of care, follow-up care, and care coordination.

The practice of telemedicine will require ongoing updating of policies, regulations, and clinical practice guidelines. The ACAAI will also need to monitor this rapidly changing landscape to ensure provision of high-quality care to the patient with allergic and immunologic disorders and consistency of practice in an era of futuristic technologies. Despite the challenges, the current and future benefits of telemedicine are promising and exciting for allergists, patients, and health care systems.

Acknowledgments

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