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Testimony of Ingrid Zimmer-Galler, MD
American Academy of Ophthalmology
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Chairwoman Velazquez, Ranking Member Chabot, and members of the Committee, I am honored to be testifying before you today on behalf of the American Academy of Ophthalmology. My name is Ingrid Zimmer-Galler, and I am an Associate Professor of Ophthalmology at Johns Hopkins Wilmer Eye Institute. I also served as the Founding Executive Clinical Director of the John Hopkins Office of Telemedicine for 3 years and serve on the Academy's Telemedicine Task Force. The Academy is the world's largest association of eye physicians and surgeons and seeks to protect sight and empower lives by setting the standards for ophthalmic education and advocacy for our patients and the public.

I am excited to share and discuss with you today the promise of telemedicine, both in ophthalmology and more broadly, and to highlight the culture shift that is already occurring among patients and providers as telemedicine is being recognized as a new tool to deliver health care. My initial work with telemedicine began two decades ago with research on diabetic retinopathy assessment by remote retinal imaging to address the challenge of vision loss due to poor compliance with recommendations for annual eye exams to screen for diabetic eye disease. We implemented one of the first large-scale telemedicine diabetic retinopathy screening programs in the US, and, over a decade, more than 175,000 imaging encounters were completed in 17 states and several countries resulting in a significantly improved diabetic retinopathy screening rate in multiple geographies. This early work let to my involvement with the American Telemedicine Association (ATA) where I served as chair of the Ocular Telehealth Special Interest Group followed by four years on the ATA Board of Directors. More recently, as the clinical leader and strategic advisor for all Johns Hopkins telemedicine efforts, my work focused on incorporation of telemedicine across a large health system and into all medical specialties. Additionally, we are now incorporating artificial intelligence into telemedicine diabetic retinopathy screening programs in adults and children.

John Hopkins Office of Telemedicine:

The Johns Hopkins Office of Telemedicine was launched in July 2016 and was purposed with the strategic deployment, support and coordination of the delivery of clinical services by telecommunications technology initially within the Hopkins healthcare enterprise and now also to national and international external markets. The office oversees the implementation of telemedicine services including building any required technology infrastructure and integration with the electronic medical record. The office assists in coordinating clinical activities, evaluating and advising on relevant research studying clinical outcomes and the efficiency of telemedicine. The office staff also work closely with legal, payor and compliance teams of experts to ensure a coordinated approach to telehealth across John Hopkins Medicine. Participation with government affairs on national and state levels in policy development for telemedicine is another important role for the office of telemedicine. The approach to virtual care at Johns Hopkins has been to use standardized and scalable methods to create solutions and alternative options for health care delivery to our patients. The goal is to allow clinicians to follow similar workflows regardless of whether the patient is being seen in person or virtually.

Our Office of Telemedicine has 6 full time staff including a physician medical director, a nurse program manager, an administrative director, two project managers, and a technology coordinator/software engineer. As of Oct 2019, there are 63 live telemedicine projects at Johns Hopkins in 56 different sub-specialty areas. Over 18,000 total telemedicine encounters have been performed since inception of the office of telemedicine. Telemedicine programs at Johns Hopkins include asynchronous or store-and-forward projects, which generally involve sharing images and other data as consults between providers or between a patient and provider not in real time, and synchronous live interactive video visits between providers or between a patient and a provider. Additionally, remote patient monitoring of patients with chronic disease such as diabetes, congestive heart failure and lung diseases can reduce overall health care costs by reducing hospital readmissions and avoidable emergency department visits.

Some examples of our asynchronous projects include:

- Diabetic retinopathy screening while patients are visiting with their endocrinologist allow acquisition of retinal photographs which are interpreted by a specialist remotely. More recently this has been incorporated with near simultaneous interpretation of the images by artificial intelligence.

- E-visits for simple low-acuity problems allow patients to send a message with or without an image to their provider through the patient portal. The provider responds to the patient via the patient portal typically the same day. This is a more cost-effective and convenient alternative to an in-person office visit which also saves the avoided in-person visit time for a patient with a higher acuity problem.

A few examples of synchronous telemedicine projects at Johns Hopkins include:

- Video consults which provide ophthalmology specialty care to a community hospital that does not have ophthalmologists on call thereby avoiding transfer of most patients with eye problems to a tertiary care hospital.

- Video visits are also an option in the emergency department for patients with lower acuity problems allowing them to see a provider virtually sooner than the potentially long wait for an in-person visit with an emergency care provider.

- Video visits for specialty care which is being provided to rural areas without access to specialists. Care for patients with hepatitis C, including access to life-saving drug treatments, is now available to communities in western Maryland that have no infectious disease specialists. Similarly, pediatric specialty care including endocrinology and rheumatology is now available to communities on the eastern shore of Maryland which are hours away from any such specialists. These specialty care video visits take place in the local community health departments and are facilitated by the local staff.

The Benefits of Telemedicine & Ophthalmology Successes:

Telemedicine can benefit institutions, healthcare systems, and providers by expanding access to care and improving the quality of care in both rural and urban settings. The challenges and burdens on patients from rural areas to access care include transportation and time required for travel which can be significantly alleviated with virtual care. Small rural hospitals and healthcare facilities are able to offer a wide range of quality specialty and subspecialty care with telemedicine even when it is not feasible to staff these facilities with specialist providers. Providing care locally and allowing patients to stay in place in their community rather than transferring the patient allows tertiary care center beds to remain available for those in need of more critical care. Additionally, this helps reduce rural provider isolation by allowing the providers to work as a team, offering support and sharing knowledge. Similarly, telemedicine can be extremely helpful for patients with limited mobility including the wheelchair bound and patients in skilled nursing facilities who have difficulty being transported for health care visits. For example, neurologists at Johns Hopkins offer follow-up video visits at home to patients with amyotrophic lateral sclerosis (Lou Gehrig's disease) who may not be able to walk and may be on a respirator.

Numerous examples of successful telemedicine programs exist in ophthalmology with the earliest being in the realm of diabetic retinopathy screening. In most geographies diabetic retinopathy remains the leading cause of vision loss in working-age adults in part due to poor compliance with recommendations for regular eye examinations. Early detection of diabetic retinopathy is key to allow intervention before permanent damage and vision loss occur. The effectiveness and success of diabetic retinopathy screening with telemedicine can be measured by the many programs in place in the United States and internationally. Large national

telemedicine diabetic retinopathy programs are in place throughout the Veterans Affairs (VA) health system and the Indian Health System. In the United Kingdom, diabetic retinopathy is no longer the leading cause of blindness in adults in part due to a national diabetic retinopathy telemedicine program. In 2018, a cloud-based artificial intelligence (AI) algorithm used to detect referable diabetic retinopathy was cleared as the first autonomous AI device to be marketed in the United States without the need for a clinician to review the images or results. This greatly enhances opportunities for early disease detection in patients with diabetes in the primary care environment even in areas where access to retina specialists may be limited.

Other successful uses of telemedicine in ophthalmology include remote screening for retinopathy of prematurity (ROP) which addresses another public health concern in the United States. Despite good treatment options, babies continue to go blind from ROP due to the lack of available physicians who are able and willing to diagnose and manage this disease. Using a wide-angle digital retinal camera to capture images that are interpreted by a remote expert helps to overcome geographic challenges and expert provider shortages. By complementing traditional ROP management, telemedicine allows it to be done more efficiently and with fewer in-person examinations which also expands the reach of individual providers. The VA is using an ocular telehealth program to expand basic eye care services for veterans which is especially useful for veterans in rural areas with limited access to specialty eye care. With this program, veterans in rural areas can undergo eye-disease screening at a community-based outpatient clinic as part of their local primary care visit. Veterans who need follow-up care can see an ophthalmologist at a VA medical center or in the local community.

Opportunities for Growing the Medical Workforce:

While the core functions may be similar, telemedicine program structures vary significantly, and no two telemedicine programs will look exactly alike. A typical telemedicine workforce will involve staff of varying education and skill level. Staffing, as well as their additional education and training for telehealth roles, is critical as these individuals are the ones that will likely determine the success of the program. Some of the recommended staffing roles for a successful telemedicine program include:

- Physician medical director who serves as liaison for medical staff and the institution's leadership and provides clinical guidance to the telehealth providers

- Administrative director who guides the telemedicine team, handles administrative aspects of implementation, and serves as the primary advocate for the program within the health system

- Program coordinator with clinical experience, such as a nurse, who leads project managers and all aspects of telehealth clinical services such as staff and provider training, service coordination and process development.

- Project manager(s) who works closely with clinical departments to develop workflows and provide support pre- and post-implementation

- Site coordinator(s) at the originating site where the patient is located who serves as the main point of contact and is the local distributor of telemedicine information

- Technology coordinator who serves as the primary contact for hardware and software issues including immediate response to troubleshoot connectivity and equipment issues when clinical services are being provided

- Nurse or staff presenter at the originating site who facilitates the virtual clinic visit, assists the patient and interacts with the remote provider as needed

- Clinical champions in the various specialty departments, who may not be part of the telemedicine team, are vital to encourage and support providers new to telemedicine technology.

Major Barriers for Widespread Telemedicine Adoption:
In spite of the promise of telemedicine, policy barriers on both the state and federal level continue to contribute to its limited use. A major barrier to telehealth adoption is lack of consistent reimbursement for virtual care. Federal reimbursement is centered on Medicare. Medicare restricts where telehealth services can take place both geographically and originating site-wise, the type of provider who may bill for telemedicine services, and the type of service that can be billed (primarily synchronous services). Although some exceptions for very specific conditions exist, Medicare limitations, which are largely statutorily dictated, have impeded the growth of telemedicine. Existing legislation in the Senate, the Screenings for Eye Evaluation, Monitoring, Observation, Review, and Examination (SEE MORE) Act, would lift originating site restrictions. Other inroads are being made and recently Medicare has moved to allow reimbursement for remote communication technology, chronic care management and remote patient monitoring.

Medicaid policies on the state level are generally more progressive but each state dictates their own policies resulting in a patchwork quilt of telehealth laws and regulations across the United States. Frequently limitations on coverage of services and the settings where they can occur remain. Most state Medicaid programs reimburse video visits, a few reimburse asynchronous visits and some reimburse remote patient monitoring. However, each state has their own limitations and restrictions. Commercial payers tend to embrace telemedicine but their policies also vary across states. Many states have parity legislation which mandates payers to reimburse for telehealth delivered services. However, often parity is only dictated for coverage of services and not in payment amount. Importantly, payment policy on the federal or state level does not typically recognize and compensate for the cost of initiating a telemedicine

program, paying instead only for the work and practice expense of a presumed mature technology.

An additional major policy barrier inhibiting adoption and wide-spread use of telemedicine is licensing of providers. Current regulations at the state level require that providers be licensed in the state where the patient requesting telemedicine services is located (medicine occurs where the patient is located). Applying for licenses in multiple states can be time-consuming and costly. The American Academy of Ophthalmology has supported action by the Federation of State Medical Boards to facilitate multi-state physician licensure for those looking to provide telemedicine services outside of their home state. The Interstate Medical Licensure Compact currently allows qualified physicians who wish to practice in multiple states with an expedited pathway to licensure. More than half of all states have joined the compact and are issuing licenses through the process. Similarly, a licensing compact allows nurses to practice in more than 30 compact member states without having to obtain another state license.

State regulatory boards also are increasingly developing regulations, policies and guidelines on the use of telehealth which creates an additional layer of rules with which providers must comply. Other concerns and potential barriers that need to be addressed include malpractice coverage, privacy and security issues, prescribing, broadband access and credentialing and privileging.

Closing Remarks:
On behalf of the Academy and the ophthalmic community, I thank you for your time in allowing me to discuss my work in this field and the benefits of telemedicine. I look forward to your questions.

DISCLOSURE OF FEDERAL GRANTS OR CONTRACTS

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