

Date September 18, 2018

Subject: Georgia Council on Lupus Education and Awareness

Telemedicine Pilot project and Feasibility Report

To American College of Rheumatology

From: Christopher Reed, Co-Chair

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Purpose

To provide you with a summary of the telemedicine pilot program to determine the feasibility a telemedicine program in Dougherty County, Georgia for persons with lupus.

Background

The American College of Rheumatology (ACR) was funded by the Centers for Disease Control and Prevention (CDC) to implement several activities to improve lupus education, awareness and access to early diagnosis and treatment and awareness. The Georgia Council on Lupus Education and Awareness (GCLEA) received funding to plan and implement a telemedicine pilot study for persons living with lupus in rural southwest Georgia.

The study linked primary care practitioners in rural southwest Georgia with rheumatology specialists at Emory University Hospital and Emory University School

¹ The project described was supported by Grant number 6 NU58DP006138-01-02; CFDA number 93.068, Developing and Disseminating Programs to Build Sustainable Lupus Awareness, Knowledge, Skills and Partnerships.

² The GCLEA is the only state sponsored mandated entity created to improve the lives of Georgia residents who live with lupus by improving public education and awareness, improving access to resources for patients and family members, and developing information that will inform current and future public health efforts. It is housed in the Georgia Department of Community Health and frequently partners with the DPH.

³ The American Telemedicine Association (2017) defines telemedicine as the: "use of medical information from one site to another via electronic communications to improve a patient's clinical health status. Telemedicine includes a growing variety of applications and services using two-way video, email, smart phones, wireless tools and other forms of telecommunications technology." American Telemedicine Association. (2017). Retrieved from www.americantelemedicineassociation.com.

⁴ Analysis and Evaluation of the GCLEA Pilot Study was conducting by Sinead Young, Ph.D. of Younge Consulting, LLC.

of Medicine (Emory). Since the Georgia Department of Public Health (DPH) has a system of sites throughout Georgia that cooperate with telemedicine consultations for a variety of health conditions, GCLEA's study assessed the frequency with which primary care practitioners in southwest Georgia saw lupus patients and their perception of the value of telemedicine in their practice. The GCLEA also conducted an assessment of attitudes, behaviors and beliefs of various rheumatologists throughout the state before the pilot consultation experience. One government health clinic, Dougherty County Health Clinic (Clinic) which currently specializes in obstetrics and gynecology telemedicine consults, agreed to expand consultations to include persons with lupus. First, the Clinic trained rheumatologists from Emory on the ways in which telemedicine can be used to diagnose and treat lupus; the logistics of examinations, and funding mechanisms for the Clinic and rheumatologists as a party of the study. Next, five women from southwest Georgia, who were previously diagnosed with lupus, agreed to be examined by the rheumatologists at the Clinic using the telemedicine equipment. Data collected on these patients before and after the study included their perception of telemedicine both before and after the consultation, age, race/ethnicity, insurance status, current treatment plan and current travel time to see a rheumatologist. The results of this study are set forth in the following report.

Discussion

In 2016, the GCLEA and Lupus Foundation of America, Georgia Chapter, convened a statewide workshop of public health professionals, educators, medical providers, social workers, researchers, and community activists. One of the goals of the workshop was to collaborate and create the Georgia Action Plan - ways to encourage and facilitate public and private action designed to combat lupus. A key component of the Plan is to improve access to care and services for people living with lupus by connecting patients and rheumatologists using telemedicine. An environmental scan of telemedicine in Georgia, conducted for GCLEA by Highland Nonprofit Consulting, LLC in 2017, indicates that there are education gaps among rheumatologists and patients on the uses, benefits, administration, and logistics of telemedicine. Based on the finding of the scan, the benefits of telemedicine, according to the scan, is that it treats patients who would not otherwise have convenient access to a specialist, but also it can teach other medical providers about the diagnosis and treatment of lupus.

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⁵ Funding was provided by a grant from the Centers for Disease Control and Prevention (CDC) and supervision was provided by the National Association of Chronic Disease Directors and the Lupus Initiative. The GCLEA has received this funding three years in a row.

⁶ The Lupus Foundation of America-Georgia Chapter estimates that there are 55,000 Georgians living with lupus. The Georgia Society of Rheumatologists and the American College of Rheumatology (ACR) indicate that there are 109 rheumatologists in practice in Georgia who are qualified to diagnose and treat lupus. A large majority of these rheumatologists are centered in metropolitan Atlanta, particularly in the northern suburbs.

Telemedicine equipment exists throughout a majority of the state. The Georgia Partnership for Telehealth (GPT)⁷, a statewide non-profit telehealth network, reports that it has provided 130,000 patient encounters using 40 different specialties, as recently as 2013, and has the capacity to provide the same service to 106 of Georgia's 159 counties. The Georgia Department of Community Health uses telemedicine equipment to provide services in some clinics throughout the state for patients on Medicaid. The Clinic uses telemedicine to provide medical services to those with infectious diseases, women with high-risk obstetrics, and women and children in the Women, Infants, and Children's nutrition program or WIC.

The Dougherty County Health Clinic, a clinic run by the Georgia Department of Public Health in Albany, Dougherty County, Georgia⁸, uses telemedicine equipment to educate pregnant mothers about prenatal health and the birthing process. They have two units, one of which is mobile. The clinic, also known as the Telemedicine Originating Site (Originating Site), also performs prenatal patient examinations and consultations by communicating via the telemedicine equipment with Dr. C. Anne Patterson, an OB/GYN in Sandy Springs, Georgia. Dr. Patterson, who is defined as the Distant Site Provider (Provider Site), can use the telemedicine stethoscope to listen to the patient's abdomen, a laptop to view ultrasounds, a Dermascope⁹ to view real time images of the epidermis, electrocardiograms, sonograms, and medical records in real time. All equipment, with the exception of the telemedicine stethoscope and Dr. Patterson's laptop, is housed and provided to the Originating Site. The "Pregnancy Centering Model", as it is called has had positive results and the Clinic department reports better pregnancy outcomes than neighboring counties. In addition to the pre-natal program, the Clinic uses telemedicine equipment to treat children with sickle cell anemia. The Originating Site uses a Telemedicine Presenter, usually a registered nurse or licensed practical nurse, to assist with the examination of each patient. All participants in the examination are given individualized account numbers from GPT which holds a copy of the patient consent form and HIPAA forms. All medical records are housed electronically at the Originating Site. There are no set criteria for women and children to be treated or use the telemedicine services provided by the Clinic. Dr. Patterson is compensated using a patient's

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⁷ GPT operates an Open Access Network that connects operational statewide telemedicine provider programs with telemedicine patient clinic locations.

⁸ Dougherty County has a population of 89,502 based on estimated 2017 US. Census records. It's demographics are as follows: 70.2% Black or African American, 27% White, 2.9% Hispanic or Latino, .3% American Indian, .9% Asian, and 1.3% two races or more. The median household income from 2012-2016 was \$33,605.00. Thirty percent (30%) of the population lives below the poverty level.

⁹ Dermascopes are computerized polarized-light videomicroscope that use, in some cases, lenses with ×20 to ×70 factors of magnification to view segments of a patient's epidermis. Antonella Tosti, MD; Fernanda Torres, MD; Cosimo Misciali, MD; et al., Follicular Red Dots: A Novel Dermoscopic Pattern Observed in Scalp Discoid Lupus Erythematosus. *Arch Dermatol.* 2009;145(12):1406-1409. doi:10.1001/archdermatol.2009.277; "The dermoscope has been known to reveal structures [on the epidermis] not visible to the naked eye . . ." Kittler H., Pehamberger H., Wolff K., Binder M. Diagnostic accuracy of dermoscopy. *The Lancet Oncology.* 2002;3(3):159–165. doi: 10.1016/s1470-2045(02)00679-4.

private insurance carrier¹⁰, Medicaid¹¹,PeachCare for Kids, or on a sliding scale. Telemedicine Originating Sites, like the Clinic may bill a facility fee to the insurance provider.¹²

The Clinic and its county seat, Albany, Georgia were chosen as the pilot site because Dougherty County and the surrounding 39 counties that make up southwest Georgia are some of the poorest counties in Georgia. Out of the three rheumatologists in this area, one takes government funded health insurance and his office is over an hour away from Dougherty County. The other two rheumatologists in the 39 county area do not take government funded health insurance. Therefore, many patients are forced to seek care from rheumatologist hours away, wait months to see local rheumatologists, seek care from another type of medical provider or no care at all.

Discussion on the Telemedicine Pilot Study Method

A total of five women living with lupus volunteered to participate in the August 31, 2018, pilot study at the Originating Site. Volunteers, all diagnosed with Systemic Lupus Erythematosus, were required to complete consent forms to participate in the study as well as acknowledge their understanding of their privacy rights via the Health Insurance Portability and Accountability Act. Volunteers were given a pre-pilot survey and a post pilot survey. Each volunteer saw one of two rheumatologists, Dr. S. Sam Lim of Emory University School of Medicine and Grady Health System or Dr. Aliza Lipson of Emory University School of Medicine who were house at two different Provider Sites. Drs. Lim and Lipson communicated with each patient using all of the telemedicine equipment available except the telemedicine stethoscope which was not available to the physicians. While both doctors were able to view each examination, only one doctor conducted the examination and each patient was only aware that one physician was conducting that examination.¹³ Each rheumatologist and patient were assisted by Nurse Valenia Milling, the Telemedicine Presenter at the Dougherty County Health Clinic. Each examination took on average twenty (20) minutes. Drs. Lim and Lipson were given post pilot surveys.

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¹⁰ Commercial insurance carriers are mandated to cover telemedicine services and reimburse providers in the same way it would in-person medical treatment, pursuant to the Georgia Telemedicine Act of 2005. O.C.G.A. §§ 33-24=-6.4, 43-34-31.

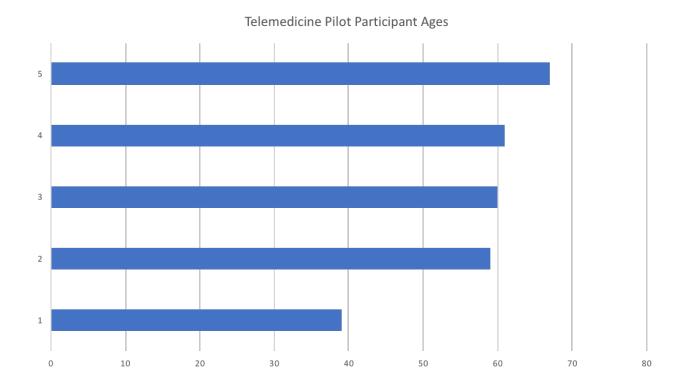
^{11 &}quot;Georgia Medicaid will reimburse for live video when the service is "medically necessary, the procedure is individualized, specific, consistent with symptoms or confirmed diagnosis of an illness or injury under treatment, and not in excess of the member's needs." GA Dept. of Community Health, GA Medicaid Telemedicine Handbook, p. 2, (Oct. 2014). (Accessed September 2018)). 12 GA Dept. of Community Health, GA Medicaid Telemedicine Handbook, p. 48, (Oct. 2014) (Accessed September 2018).

The telemedicine has a mechanism allowing up to four physicians to be connected with the patient from multiple Provider Sites. Each physician could hide their participation from view of the patient.

Participant Demographics

A total of five (n=5) African American/Black women volunteers, living with Lupus participated in the pilot study on August 31, 2018. The participants ranged in age from 39 to 67 years of age with an average age of 57 years old (see Table 1). The majority of participants (n=3) reported having been diagnosed with Systemic Lupus. One participant did not report what type of Lupus she was diagnosed with and another participant reported having Drug Induced Lupus. All five volunteers reported currently having health insurance, having a rheumatologist, and being treated by the rheumatologist in the last 12 months.

Table 1



Access to Medical Providers

Three participants reported traveling at least 120 miles to visit their rheumatologist. Two participants reported traveling 10 miles or under to visit their rheumatologist.

Two participants reported that they do not see a rheumatologist for their Lupus. One participant reported seeing an internist and the other reported that she did not see anyone for her Lupus. Two of the three participants reported having heard about telemedicine prior to the pilot. One of the five participants reported using telemedicine in the past.

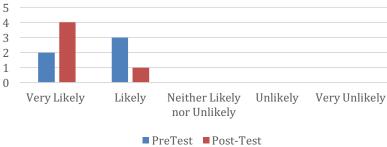
Volunteer Pre and Post Pilot Survey Results

When asked, "Telemedicine provides the same quality of care as an in person visit?" Two participants Strongly Agreed and two participants Agreed. One participant reported, "Don't Know." Post pilot, three participants reported Strongly Agreeing and two participants reported Agreeing that telemedicine provided the same quality of care as an in person visit.

When participants were asked, "If no rheumatologists were available in your area, how likely would you agree to allow your healthcare provider to use a telemedicine system to treat your lupus?" At pre-test, two participants reported being very likely and at post-test, three participants reported being Very Likely, and one participant reported being Likely to use telemedicine to treat their Lupus¹⁴ (see Table 2).

Table 2





Volunteer Patient Concerns Using Telemedicine

Lack of face-to-face time with the rheumatologist was the most endorsed concern of the pre-test. (see Table 3). $^{15\ 16}$

Table 3

Pre-Test Endorsements	Post-Test Endorsements	
3	1	Future on call access to the Rheumatologist Lack of face to face time with the Rheumatologist

¹⁴ One respondent did not answer all of the post test questions.

Two respondents did not answer all of the post test questions.

¹⁶ Lack of face time is possibly a result of the age range of the participants and the possible limited experience with online technology and social media. In addition, participants may feel that the absence of physical contact diminishes the examination.



Open Ended Responses from Post-Test

What did patient participants like *most*?

- Talking
- Friendly
- I feel very confident with this program.
- Concern with what I may need help
- Convenience

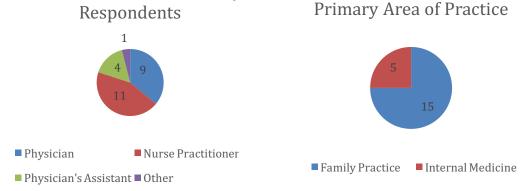
What did patient participants like *least*?

- She is not in person/ not here
- Being able to face and talk with the rheumatologist as if in an office setting (questions/answers)
- I liked it

Medical Provider Responses

In a separate survey, medical providers in southwest Georgia responded to a survey about treating Lupus patients. A total of (n=25) providers responded. The majority of respondents (n=11) were nurse practitioners followed by physicians (n=9), physician assistants (n=4) and 'other' (n=1).

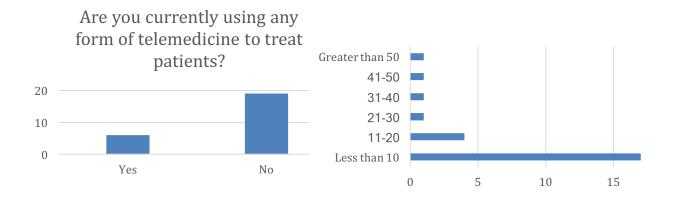




A total of six or 24% of health care providers reported using some form of telemedicine. When asked, "Do you think telemedicine provides effective coordination of care without compromising quality or patient outcomes?" All (N=24) 100% of the providers reported 'yes' (see Table 8). The majority of medical providers reported seeing 10 or less Lupus patients a year (see Table 7). When asked, the majority of respondents (n=19) reported increased access to physicians' referral network as an

advantage. Benefits and challenges of using telemedicine to treat Lupus patients are reported in Table 8.

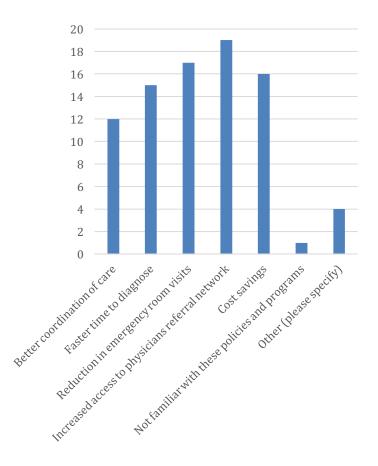
Table 6 Table 7

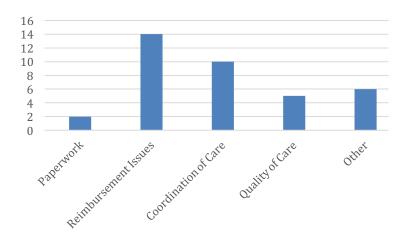


Main Advantages of Using Telemedicine to Treat Lupus?

Table 8

Main Barriers to Using Telemedicine to Treat Lupus?



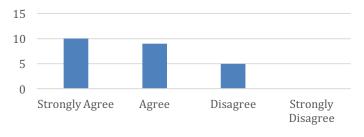


Future Projections

Most providers *Strongly Agreed* that if a patient presented with symptoms of Lupus, they would know when to refer s/he to a rheumatologist (see Table 9). The top two endorsed concerns for using telemedicine were *Medicare covers too few telemedicine services* (n=10) and *We receive no reimbursements for a telemedicine visit* (n=10). The majority of health care providers reported being *Very Likely* or *Somewhat Likely* that they would use telemedicine to treat patients with Lupus (see table 9). The least endorsed concerns were *Managed care companies paying lower rates for telemedicine than in-person care* (n=3) (see Table 10). The majority of health care providers project that three years from now 25% or less of patients will be using telemedicine (see Table 11).

Table 9 Table 10

Confidence in Referring to a Rheumatologist



Significant Concerns Regarding Reimbursement of Telemedicine

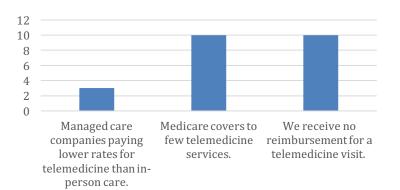


Table 11

Three years from now, what percentage of your patients will be using telemedicine services?

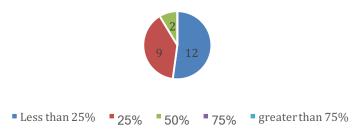
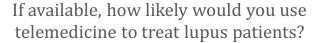
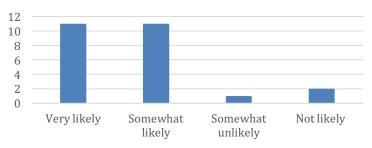


Table12





Medical Providers' Open-Ended Responses

• I work for public health- we would refer to their PMD and the PMD would refer to rheum. Luckily, we have a specialist in Thomasville. I work a weekend a month in the ER in Thomas County. We use telemedicine on stroke alerts and on the input side they have been using tele med to have neuro consultation and it seems to work well. It was very efficient and effective in the ER.

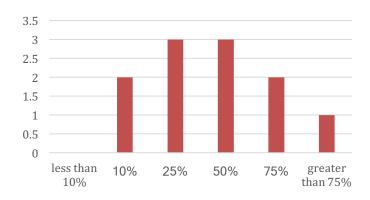
Rheumatologists Responses

Eleven rheumatologists responded to a survey regarding the treatment of Lupus patients. When asked, where is your practice is located, the majority (90% or 10 out of 11) of rheumatologists practice in metro Atlanta.

Patient Travel Time and Number of Patients Treated

When asked, "What percentage of your patients travel more than an hour to visit you?" The majority responses ranged from 25% to 50% (see Figure 1). The majority (90% or 10 out of 11) of rheumatologists reported encountering 50 or more patients per year.





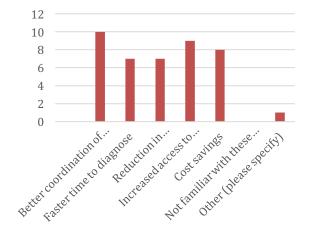
Feasibility of Telemedicine

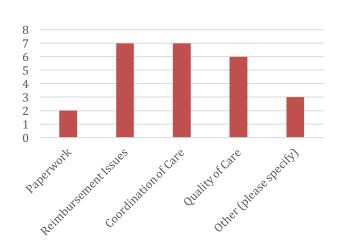
When asked, "Do you think telemedicine provides effective coordination of care without compromising quality or patient outcomes?" The majority of rheumatologists (n=9) reported "yes."

Advantages and Barriers

When asked, "What are the main advantages to using telemedicine to treat Lupus patients." The number one endorsed advantage listed was "Better coordination of care." The additional responses are listed in Figure 2. Interestingly, when asked about the main barriers to using telemedicine were "Coordination of care" and "Quality of Care."



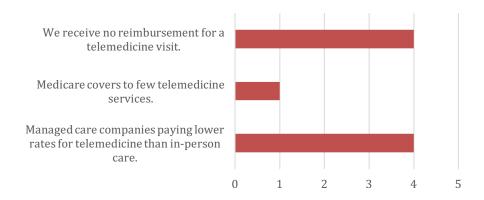




Telemedicine Concerns

When asked, "What is your most significant concern regarding reimbursement of telemedicine services." The most common responses were "We receive no reimbursement for a telemedicine visit" and "Managed care companies paying lower rates for telemedicine than in person care."

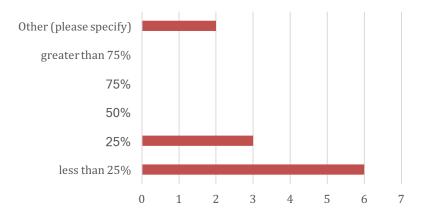
Figure 4

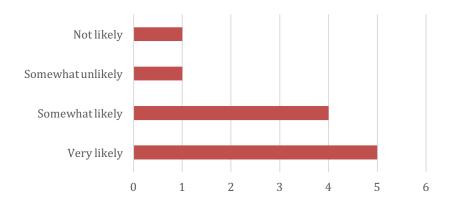


Future of Telemedicine to Treat Lupus

When asked, "Three years from now, what percentage of your patients will use telemedicine to manage some or all of their health?" The majority of respondents reported less than 25% (see Figure 5). The rheumatologists were also asked, "How likely are your patients to use telemedicine to treat lupus patients?" (See Figure 6). The majority of rheumatologists reported being "Very Likely."

Figure 5

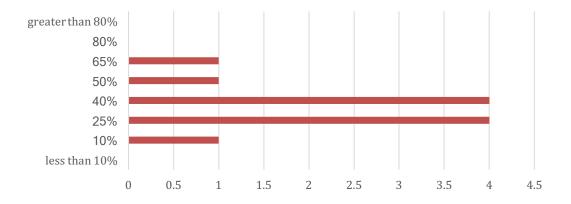




Patient Insurance Coverage

When asked, "What percentage of your Lupus patients use government funded insurance such as Medicaid or Medicare" The majority of Rheumatologist reported between 25% to 40% (see Figure 7).

Figure 6



Open Ended Responses

- Found physical exam difficult via tele-medicine.
- I have several years of experience with telemedicine through Georgia Telehealth championed by John Oxendine
- I think it will give access to people in dire need and urgent need. It should not replace visits to the doctor!
- Need Logistical Data

Conclusions

Overall, the health care providers surveyed seemed receptive to the use of telemedicine to treat their Lupus patients. Care and coordination, in addition to the quality of care were key factors that need to b

Summation of Responses from Rheumatologists who Participate in the Pilot Study

The Study was Drs. Lim and Lipson first chance to use telemedicine to examine patients and determined that this was a well performed pilot study that when conducted in a real scenario can be an effective option and alternative to services currently being provided to undertreated lupus patients who visit emergency rooms and urgent care centers. Both doctors found that the absence of some medical records, lab records, and the se of some examination tools made the examination less duplicative of a live examination. Dr. Lipson found the telemedicine examination a little more difficult than an in-person examination. Both doctors do not believe that the telemedicine examination would hinder diagnosis or treatment of lupus, but Dr. Lipson suggested that some in-persons visits would likely be needed on occasion. Both doctors that the largest concern with telemedicine is the possibility of technical difficulties and the transmission of electronic medical records. Dr. Lim indicated that the use of telemedicine to treat lupus patients is a huge win, and better than the alternative. He believes that some of his concerns can be worked out through improvements in optimization, standardization of the nurse participation and examinations, training, better coordination, and partnerships with local providers who can coordinate care that cannot be provided using the telemedicine equipment.

Technology Considerations

Telemedicine (also referred to as "telehealth" or "e-health") allows health care professionals to evaluate, diagnose and treat patients in remote locations using telecommunications technology. Telemedicine allows patients in remote locations to access medical expertise quickly, efficiently and without travel. Since lupus requires lifetime attention of several physicians, telemedicine can be implemented to improve health services to lupus patients especially the ones with remote access to health practitioners. Given that DPH and Federally Qualified Health Centers in Georgia have made an effort to equip remote clinics with telemedicine and the equipment costs for rheumatologists is limited to the cost of the stethoscope and computer, the benefit far outreaches the cost. Based on some of GCLEA's research, there are some important considerations to note, including use of technology and special equipment needed to implement telemedicine across health care locations.

Product/Service Marketplace

In the early 2000's, a study was conducted by the Georgia Lupus Registry aiming to expand the existing knowledge surrounding Lupus in a "targeted population" ("The Incidence and Prevalence of Systemic Lupus Erythematosus, 2002–2004: The

Georgia Lupus Registry"). From 2002-2004, two specific counties in Georgia, Fulton County and DeKalb County, were targeted to conduct further research on lupus. With the populations of the county being majority women, and majority African Americans, the study concludes the incidence rate being 5.6 per 100,000 people¹⁷The study confirms that the cases among black women are triple the cases among white women. Also, the cases found for women were nine times the cases found for men¹⁸ Similar studies have been conducted in areas of San Francisco, California, Manhattan, New York, and southeast Michigan. Yet, there have been no studies conducted in the rural communities in our nation. There is a shortage of health care providers in the rural regions of Georgia that have the expertise to treat patients with Lupus, contributing to the need for telemedicine for the underserved populations.

Research

While the GCLEA's telemedicine pilot study for lupus patients is known to be the first of its kind, telemedicine studies have been conducted on patients with other medical conditions. Dr. Samuel G. Burgess, et al. conducted a study that was published in 1997 connecting rural dermatology patients with dermatologists using telemedicine.²⁰ Burgess studied 87 patients over a 17-month period and confirmed that telemedicine is cost-effective and a resourceful option for patients who cannot easily access health care for necessary routine check-ups.

Conclusions, Recommendations and Action Steps

Telemedicine is the future. TowersWatson.com reported in 2014 that telemedicine could potentially deliver more than \$6 billion a year in health care saving to U.S. companies. The report indicated that out of one thousand (1,000) companies surveyed, 22% were using telemedicine in 2016 and that number increased to 37% in 2017. Based on the findings from the Telemedicine Pilot in Dougherty County and the survey results of health care providers in southwest Georgia and

¹⁷ Lim, S.S. *et al*, The Incidence and Prevalence of Systemic Lupus Erythematosus, 2002-2004. *Arthritis & Rheumatology* 2014, 66:357-368.

http://onlinelibrary.wiley.com/doi/10.1002/art.38239/abstract Michigan registry article: Somers, E.C. et al, Population-Based Incidence and Prevalence of Systemic Lupus Erythematosus. *Arthritis & Rheumatology* 2014. 66:369.

¹⁸ *Id*.

¹⁹ Dall'Era, M., et al. The Incidence and Prevalence of Systemic Lupus Erythematosus in San Francisco County, California: The California Lupus Surveillance Project., *Arthritis & Rheumatology*: 2017, 69(10)1996-2005; Izmirly, PM, et al. The Incidence and Prevalence of Systemic Lupus Erythematosus in New York County (Manhattan) New York: The Manhattan Lupus Surveillance Program., *Arthritis & Rheumatology*: 2017, 69(10): 2006-2017; Housey, M., et al. Incidence and prevelance of systemic lupus erythematosus among Arab and Chaldean Americans in southeastern Michigan: the Michigan Lupus Epidemiology and Surveillance Program. *American Journal of Public Health*: 2015, 105(5):74-9. ²⁰iBurgiss, SG, et al. Telemedicine for dermatology care in rural patients. *Telemedicine Journal*. 1997, Fall:3(3): 227-33.

²¹ Current Telemedicine Technology Could Mean Big Savings. (2014); https://www.towerswatson.com/EN-US/PRESS/2014/08/CURRENT-TELEMEDICINE-TECHNOLOGY-COULD-MEAN-BIG-SAVINGS

rheumatologists throughout the state, the implementation of telemedicine is feasible and fulfills a great need amongst patients with Lupus living in Georgia.

There are some drawbacks. Certainly, our rheumatologists were not able to sufficiently compare whether or not the need for tactile examinations is limited by telemedicine and the use of a telemedicine presenter. A larger study would need to be executed to determine whether the same quality of care, dianogis and treatment is given to each patient. Another drawback to the current system of telemedicine is that the current model limits the ability of rheumatologists to educate nurse practitioners, physician assistants, and physicians on how to diagnose and treat Lupus, an interaction that would certainly improve the effort to combat Lupus, because the telemedicine presenter is usually a registered nurse or nursing assistant. One drawback to conducting a broader telemedicine pilot in southwest Georgia is the fact that we simply do not have a vast understanding of what percentage of the population is living with lupus. In order to effectively implement telemedicine, there are several considerations that need to be taken into account:

- ⇒ Educate Lupus patients about their expectations including the limitations and benefits of telemedicine;
- ⇒ Educate and train Lupus patient health care providers on how to use technology and billing policies and procedures;
- ⇒ Conduct or retrieve a heat map study to determine where a larger pilot study on the use of telemedicine to treat lupus patients would be most beneficial;
- ⇒ Collaborate and build a relationship with the local physicians, rheumatologists and citizens to build a level of trust in the community;
- ⇒ Expand the pilot program to include persons living with lupus who are no longer utilizing current services provided to lupus patients across the state;
- ⇒ Expand the Lupus Registry to determine disease prevalence;
- ⇒ Work with insurance companies to determine what costs are covered and how we can engage companies to invest in equipment;
- ⇒ Review previous telemedicine pilot studies to compare costs benefit analysis and patient-physician satisfaction.
- ⇒ Work with entities such as Area Health Education Centers, Georgia Board for Physician Workforce, Georgia Society of Rheumatology, and the American College of Rheumatology to promote rheumatology as a medical specialty, and encourage greater us of telemedicine as a viable tool.