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The mission of The Journal is to advance the art and science of medicine to promote the ideals of the South Carolina Medical Association; to encourage scholarship and good will among South Carolina physicians; and to disseminate information specifically applicable to the health care of South Carolinians.
Zika Virus Infection: How Bad Can It Get?

By Robert T. Ball, Jr., MD MPH FACP; Joseph F John, Jr., MD FACP, FIDSA

The pandemics of HIV, West Nile Virus, influenza H1N1 and Ebola Virus Infection have jolted the world over the last four decades. In his 2011 book, The Viral Storm, The Dawn of a New Pandemic Age, Nathan Wolfe advances the idea that an “alien army” is everywhere and the “smallest of bugs” have integrated into every fabric of our global life. In this Editorial, we want to provide for South Carolina physicians a timely comment on the public health threat and on clinical/virologic considerations posed by a new global infectious threat.

Recently, rapidly increasing numbers of cases of microcephaly in Brazil were linked to the arthropod-borne Zika Virus (ZIKV). ZIKV infection rampaged through Brazil then other South and Central American countries, affecting millions, to become, on February 1, 2016, an official World Health Organization pandemic. It was not long ago in the mid 20th century that ZIKV emerged and was named for a Ugandan river valley. Brazil, a country much like the United States, has been the epicenter of the pandemic and is actively suffering the consequences of widespread infection.

In consideration of the pandemic effects threatening the U.S, our state, South Carolina, holds particular importance. ZIKV is a single-stranded (highly mutable) RNA flavivirus in the same large arbovirus family as West Nile Virus (WNV), dengue, and chickungunya. Zika’s primary mode of transmission is via bites of Aedes aegypti mosquitoes, although Aedes albopictus, the “Asian tiger mosquito,” can also transmit ZIKV. These species are widely distributed throughout South Carolina and the Southeastern US, especially prevalent in warmer months (see Map 1).

Much like infection with West Nile Virus, most persons infected with ZIKV are asymptomatic. When symptoms occur, the most frequent are a slightly pruritic maculo-papular rash, fever, arthralgias, and conjunctivitis. The current estimated incubation period is from 3-7 days although viremia probably lasts for only 1-2 weeks. ZIKV persists in certain internal body fluids like semen, saliva, urine, and breast milk for weeks, perhaps months.

By Mid April 2016, the CDC has reported current active ZIKV transmission in 33 countries in the Americas, with more soon to follow (see Map 2). The CDC has reported current travel-related cases in 39 US states and territories, with nearly 400 travel-associated ZIKV disease cases, at least 18 of which were in pregnant women, and 6 involving sexual transmission. There have been no locally-acquired vector-borne cases yet in the US. Consequently, serosurveys are now underway in the US to determine the true population prevalence. At worst, WHO estimates that there will be 3-4 million cases of Zika infection in the Americas in the next 12 months.

Why is there such concern over ZIKV? As of early March 2016, Brazil alone has reported over 5 thousand cases of microcephaly associated with ZIKV infection, regardless of trimester of ZIKV acquisition. Causation was highly suggested in several recently reported cases. Further concern arose when an association with Guillain-Barre Syndrome was reported. Even isolated cases of retinal necrosis in newborns may occur. So beyond the tragedy of microencephaly, ZIKV seems to have additional neurotropic virulence. To support the hypothesis of neurotropism, Tang et al showed ZIKV efficiently infects human neural progenitor cells.

What can physicians do to minimize the scourge of this pandemic? First for the unborn, the Centers for Disease Control (CDC) has developed sophisticated algorithms by which obstetricians and other
Sera for Plaque-Reduction Neutralization testing. Beware that some cross-reactivity occurs with dengue and yellow fever.

Fourth, physicians can provide supportive therapy. Currently, there is no cure or specific treatment, but in cases of Guillian Barre, supportive care can be life saving. Without complications, most symptomatic patients resolve their infection within several weeks or more, and likely acquire long-lasting self-immunity. The Case Fatality Rate is very low, now estimated at ~1%). Vaccine development has begun but clinical trials are at least a year or more away. Unfortunately, specific anti-viral therapy will take longer and depends on the innovation and commitment in modern biotechnology companies.

Fifth, there are potential, excellent control measures that focus on bite prevention: diligent and effective use of repellents like DEET, mosquito nets, protective clothing in ZIKV-transmission countries, removal of the smallest amount standing water, outside AND inside of homes, and strengthening all mosquito control programs. Sadly, many underdeveloped countries lack adequate public health funding for insecticides and basic mosquito control programs. On the upside, major efforts are already underway to develop and release in Piraccicaba,Brazil (Morning Edition, NPR, 25 March 2016) genetically-modified sterile male Aedes aegypti mosquitoes to slow insect reproduction and success in field testing will await US, FDA approval.10

Sixth, keeping up with the literature and global news —becoming a "medical news junkie—is especially important for concerned health care providers for patients in primary care, hospitals, obstetrics, infectious diseases (especially travel medicine), and laboratory medicine. The single best information source is the CDC at www.cdc.gov/zika, which provides timely information as it did in the early days of AIDS, pandemic influenza and WNV.

ZIKV and its spread poses many unanswered questions:

- What is the exact duration of viremia?
- What is the pattern of persistence in other body fluids?
- What are the true rates of transmission via multiple—especially sexual—modalities?
- What are the rates of various complications?
- What prevalence in the existent or expanding species of mosquito populations?

Yes, in many respects it’s deja vu all over again, but this time the “alien army” comes as a novel flavivirus capable of multiple transmission modes. This ZIKV pandemic will require novel control and prevention efforts which will prove difficult, especially in engaging public and provider knowledge and support on many fronts, eg, funding for good mosquito control, timely and proper patient testing; imploring people infected with ZIKV to abstain from sex or use condoms with pregnant partners. There is much for medical providers to learn and do, and quickly. The clock is ticking.

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Senior-Focused Primary Care is Coming!

Summer 2016

A message from Dr. William C. Logan, Jr.
Medical Director for Partners in Primary Care of South Carolina.

"I've been a physician in the Greenville area and a leader in Geriatric Medicine in the region for years. I have worked with the excellent healthcare providers who are available to our residents. What's been missing is a true focus on primary care for our senior Medicare population.

That's why I am excited to join Partners in Primary Care as the Medical Director and to bring innovative senior-focused primary care to Greenville and Anderson counties this summer. After all, doesn't our senior population deserve it?"

Dr. Logan is a graduate of the UNC School of Medicine in Chapel Hill, N.C., and is Board Certified in Internal Medicine, Geriatric Medicine, and Hospice & Palliative Medicine.

Join Dr. Logan’s team!
If you’re a healthcare professional looking for a new, creative environment where you can have an impact on lives, we are your next career destination. To learn more, email us at careers@partnersinprimarycare.com.
It has been a great privilege and pleasure to serve as the 154th president of the South Carolina Medical Association. It is amazing and a bit frightening how quickly the year has passed.

Last May, I witnessed history as over 390 fourth year medical students in Columbia, Charleston and Spartanburg crossed the stage to become physicians. That is a record in our state that will last until this May when 50 more will graduate from the new medical school in Greenville.

The excitement and gleam in the eyes of these young physicians as they approach the next phase of their training is refreshing and encouraging. They are driven by a passion to serve and heal. They are not daunted by the fact that the average medical school debt is over 200 thousand dollars or the growing problem of the lack of enough resident positions across the country.

We continue to promote and encourage membership in our organization in several ways. All medical students, residents, and fellows in South Carolina are offered free membership. The importance of involvement in organized medicine from the beginning cannot be over emphasized.

The benefits of membership are many. The SCMA staff reaches out to physicians across the state using various forms of modern communication to encourage new and renewed membership.

The past year, I had the pleasure of visiting ten county medical societies across the state. Each is unique. Recruiting and maintaining members is a common theme.

Our legislative team is second to none. We have in house council and two full time lobbyists representing the House of Medicine at the State House. Issues including scope of practice and telemedicine are at the forefront. We are also closely monitoring the important health risks of electronic cigarette vaping and tanning bed access and are poised to pursue state legislation if pending federal measures are not adequate.

We are building a relationship with the Alzheimer’s Association of South Carolina to better prepare our profession to deal with this growing epidemic. This year’s President’s Session at the annual meeting is focused on this disease and its sequelae.

The SCMA is participating in the joint effort of the AMA, CDC and YMCA to deal with our states portion of the 80,000,000 people across the country with prediabetes. Efforts are ongoing.

The SCMA continues to support the efforts of the Coalition for the Seriously Ill. Four medical practices across the state are serving as pilot sites for an Advanced Care Planning initiative.

We continue to focus on the issue of the hundreds of thousands of our states citizens without health care coverage. A group of past, present and future SCMA leaders meets with the Director of the Department of Health and Human Services and members of his staff quarterly. An SCMA task force is currently developing an action plan to address this most grave concern. A CME session “Covering all of South Carolina” will be offered at the annual meeting.

The past year we said goodbye to SGR and are preparing for the next Medicare payment model. We said hello to ICD-10; but the storm that has yet to come. Through it all we have endured.

The SCMA Doctor of the Day program began over 40 years ago. Each day, the General Assembly is in session the SCMA arranges a member volunteer physician to attend the State House. This day of service is an opportunity for members of our organization to interact with legislators from across the state and become a part of South Carolina history.

The past year, we organized the Past Presidents Advisory Council to be chaired by the immediate past president. The intent is to retain the experience and wisdom of our past leaders.

Our organization is only as strong as its membership. Whether in private practice or you are hospital employed, we are the ambassadors of our profession. If we continue to focus on taking care of our patients and honoring our profession, the future of the SCMA is bright.

Thank you again for this opportunity. I look forward to continued service in this organization and to the people of our state.

Marshall L. Meadors, III, MD
President, SCMA
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Telemedicine in South Carolina: Past, Present, and Future

By S. David McSwain, MD, MPH; Shawn Valenta, MHA, RRT; Brooke E. Yeager, MSc, RRT; James T. McElligott, MD

Introduction
Like many other areas of the country, South Carolina faces a variety of challenges in meeting the healthcare needs of its population. Recently, however, there has been increasing interest in the state in telemedicine as a means of addressing disparities in healthcare access and providing specialty medical services in community settings.

In its 2013-14 State Budget, the South Carolina Legislature appropriated substantial funding for the continued development of telemedicine throughout South Carolina.1 Catalyzed by this investment, telehealth use in the state has grown exponentially. While certainly not lone actors, at the core of this growth are a handful of stakeholders who are coordinating their efforts through the newly formed South Carolina Telehealth Alliance (SCTA). The Alliance includes services from the large health care provider entities of the Medical University of South Carolina, Palmetto Health, Greenville Health System and the Department of Mental Health, as well as tele-educational offerings through the South Carolina Area Health Education Consortium. Last, but certainly not least, Palmetto Care Connections is a non-profit entity which promotes the use of telehealth by providing training, awareness, and direct support to rural health care sites in the use of telehealth. Importantly, Palmetto Care Connections administers the Palmetto State Providers Network (PSPN), an effort funded in part by the Federal Communications Commission which provides a secure broadband network to qualifying sites at subsidized rates. This network has greatly facilitated the development and implementation of new telemedicine programs, particularly in rural areas where broadband access can be a significant barrier.

All of these recent developments have made telemedicine a hot topic in South Carolina as one of the primary means of moving our healthcare delivery system forward in the current environment, and uniquely position our state for the realization of the ambitious agenda of the South Carolina Telehealth Alliance.

This article will highlight the past, current, and future state of telemedicine in South Carolina and describe the current issues affecting the growth and acceptance of telemedicine in the state.

Background
Telemedicine is generally defined as the delivery of healthcare, including diagnosis, treatment, and transfer of medical data over distance using audio-video telecommunications. Telemedicine falls under the broader term “Telehealth,” which additionally includes the use of mobile health (mHealth) technology on personal devices such as smartphones, provision of tele-education to medical professionals and trainees, and other means of incorporating telecommunications systems into the broader health care system.

The provision of health care services via telecommunications has been around since the early 1900’s, when a radio link was utilized to provide medical services to Antarctica.2 The use of video telecommunications for the provision of medical care started to emerge in the 1950’s, and the fields that first adopted the technology are the same ones that utilize telemedicine most commonly today: psychiatry, radiology, and dermatology.3-5 NASA then took the lead on developing telemedicine as a means of monitoring the health and physical functioning of their astronauts beginning in the 1960’s.6

Telemedicine in South Carolina
The evolution of telemedicine in South Carolina mirrors that of most of the nation. Innovative applications, like the early tele-
access to a maternal fetal medicine specialist. This program has been highly successful over the past decade in improving high-risk pregnancy outcomes and removing access barriers to specialty care. Veterans Affairs telehealth activities in South Carolina have also been well established for some time. Nationally, telehealth activities in the VA have been ongoing since before 2000, with hundreds of thousands of encounters logged annually. The Ralph H. Johnson VA Medical Center in Charleston serves the mental health needs in multiple east coast states through telehealth.

The development of these programs has paved the way for an explosion of telehealth offerings in South Carolina, with multiple new applications in development in the past five years. In the inpatient setting, regional hospitals are gaining access to specialty care through teleconsultation services such as MUSC’s Pediatric Emergency and Critical Care Telemedicine program, collaborative case discussions with subspecialists in cardiology and oncology, and the remote management of ICU patients. These programs empower regional hospitals to keep select patients close to home, which may relieve some of the substantial financial pressures currently facing South Carolina hospitals.

Outpatient subspecialty consultations are being provided through a number of institutions, such as MUSC’s Virtual Tele Consultation (VTC) service, which provides a variety of specialty consultations including nutrition, general surgery, neurology, dermatology, orthopedics, and pediatric subspecialty services. Access to specialists in rural regions is becoming increasingly scarce, and telemedicine reduces many of the time and distance barriers which keep patients from timely access to care. Importantly, these programs are commonly offered in the primary care provider’s office. This approach enhances the medical home and allows the primary provider to maintain a central role. Programs have also been developed that extend the reach of primary care services, such as school based telehealth clinics targeting underserved children. Numerous other telehealth programs are also offered in the state, including diabetic home monitoring, smartphone-based mobile medical applications, and tele-education programs for both health professionals and patients.

### Technology

Multiple means of audio-video telecommunications exist for practicing telemedicine, allowing for a vast array of telemedicine setups ranging from robotic mobile telemedicine carts designed to maneuver around a clinical environment autonomously, to portable personal devices such as laptops, tablets, and smartphones. The specific setup utilized depends on the specific needs of each program. Many telemedicine programs are designed around an interface that features advanced decision-support software, an integrated electronic medical record, and radiographic image sharing capabilities. Telestroke networks, in particular, benefit greatly from programs that assist providers on both ends of the consultation in quickly gathering relevant information to efficiently determine when thrombolysis is indicated. Other telemedicine programs feature a less structured, but more versatile equipment and software setup that optimizes flexibility and ease of use to handle a variety of clinical situations.

A wide array of peripheral devices for use with telemedicine systems is also available, which can substantially improve the telemedicine examination. Hand-held examination cameras allow close-up examination of the skin, eyes, and oropharynx. Otoscopes, opthalmoscopes, stethoscopes, spirometers, colposcopes, ultrasound probes, video laryngoscopes, EKG monitors, and many other devices have been designed specifically for telemedicine systems. Providers on one end of the consultation can share their computer screens with the distant provider in order to display relevant radiographic images, labs, and documents. Additionally, many telemedicine setups include multiple video inputs which allow for the transmission of images from devices not specifically designed for telemedicine, such as echocardiographic machines and portable ultrasound devices.

Advances in telemedicine equipment, infrastructure, security, and software have evolved rapidly in recent years. Combined with advances in general computer and information technology, including wireless internet, cellular networks, BlueTooth®, and cloud storage, these enhancements have given telemedicine providers examination and data sharing capabilities that are significant improvements over what was available only a few years ago. The immediate future for telemedicine includes increasing utilization of smartphones and tablets for telemedicine applications, further integration and sharing of electronic medical records with telemedicine, and ever-increasing network speeds, data storage capacity, and wireless functionality. With devices on the horizon such as optical head-mounted displays and other wearable computers, the evolution of telemedicine is not slowing down any time soon.

### Reimbursement and Funding

In concert with the evolution of telemedicine technology, the funding and reimbursement for telemedicine in South Carolina is at a stage of dynamic evolution as well. As of 2015, 29 states have enacted legislation man-

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**Source:** South Carolina Telehealth Alliance, 2015 Annual Report

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**March/April 2016 • Number 1**
dating private payer reimbursement of telemedicine services by third-party payers. While South Carolina has not legislated that private payers provide equal reimbursement for telemedicine encounters on par with face to face visits, private insurers in the state, like Blue Cross BlueShield, have recognized the benefits of telehealth and have begun to improve their own policies to increase coverage for telehealth services.

Medicare currently pays for an array of telehealth services provided by a variety of different healthcare professionals, but the coverage is limited to patients originating in a rural setting. These rurality rules limit the access to telehealth for Medicare beneficiaries in many medically-underserved areas of the state. Proposed changes to CMS telehealth policy planned for 2016 include an expansion of the geographic areas that qualify as originating sites for the delivery of telehealth services, an increase in the number of services covered, and the addition of allied health professionals as covered providers. The services must be real-time interactions utilizing audio-video communications equipment, and claims must be submitted with the GT telehealth modifier appended to the standard CPT code. The facility where the patient is located is also eligible to receive an originating site facility fee for the telehealth visit.

South Carolina Medicaid currently reimburses for specific CPT codes for telemedicine, including office and outpatient visits, inpatient and outpatient consultations, individual psychotherapy, pharmacologic management, psychiatric diagnostic interview examinations, neurobehavioral status examination, EKG interpretation, and echocardiography. At present only physicians and nurse practitioners who are licensed in South Carolina may bill Medicaid for covered telehealth services, and patients must be located in the South Carolina Medical Services Area, which includes areas in North Carolina and Georgia within 25 miles of the South Carolina state border. More detailed information on covered telehealth services can be found in the South Carolina Medicaid Physicians Provider Manual.

When the South Carolina Legislature was looking for innovative ways to transform the delivery of health care in the state, the initial successes achieved by South Carolina’s early adopters of telehealth were both enlightening and influential. Over the past three years, the Legislature has made significant investments into creating a statewide open-access telehealth network for South Carolina. Additionally, The Duke Endowment has supported the development of numerous telemedicine programs in South Carolina in recent years, and telemedicine is an increasingly popular avenue for grant funding both in South Carolina and nationwide. With the support of state-appropriated and additional grant funding, South Carolina has demonstrated an unprecedented growth of telehealth activity that is enhancing the efficiency of the care system by increasing coordination and collaboration.

CREDENTIALING

A recent change in both the Centers for Medicare and Medicaid Services and The Joint Commission’s credentialing standards for telemedicine programs has also had a significant impact on the development of telemedicine programs throughout the country. Traditional credentialing practices require each physician consulting to outlying hospitals to be individually credentialed at each facility using the standard credentialing mechanism. This process can be extremely time-consuming and labor-intensive for both the originating and consulting hospitals if the telemedicine program in question involves a significant number of providers. However, CMS and The Joint Commission (TJC) have greatly streamlined the process of credentialing multiple telemedicine providers at referring healthcare facilities by creating credentialing-by-proxy standards.

Utilizing this mechanism, referring sites can agree to accept the credentialing and privileging decisions of a Medicare-participating hospital for the provision of telemedicine services at their facility. Once an agreement is in place to participate in credentialing-by-proxy, the consulting telemedicine site then provides the referring site with a list of telemedicine providers and their associated privileges, as well as evidence that the consulting site’s credentialing practices meet the standards set forth by CMS and TJC for credentialing physicians at the consulting facility. That list is approved by the referring site, and telemedicine consultants can proceed without the need for the full traditional credentialing process. Multiple safe-guards are in place to ensure appropriate practice and notification in the event of disciplinary action or complaints against any specific provider.

LEGAL ISSUES

Since telemedicine is still evolving as a means of health care delivery, there are many circumstances where statutes and guidelines written with face-to-face medical practice in mind are ambiguous when applied in the setting of telemedicine. Many issues, such as compliance with the Stark Law and anti-kickback statute, HIPAA compliance, and licensure, are more thoroughly vetted with regards to telemedicine, and can be addressed confidently through consultation with an attorney familiar with such laws. Other legal and regulatory issues, such as establishment of the doctor-patient relationship, supervision of physician extenders and trainees, and the corporate practice of medicine, are less clear cut and may vary considerably state-to-state. In general, it is highly advisable to involve an attorney familiar with medical laws and regulations early in the process of developing or participating in a telemedicine service.

A frequent question in regards to telemedicine involves liability risk. Telemedicine consultation differs from traditional telephone discussions of patients, in that a telemedicine provider is generally assuming responsibility for the patient as they would when caring for the patient in person. When the patient is located at a referring healthcare site, the referring site also maintains shared responsibility for the patient as long as they remain at their facility. In many cases, those practicing telemedicine are covered under the malpractice insurance of their home facility. However, consultation with an attorney familiar with malpractice laws as they relate to the practice of telemedicine is advised. It is also important to note that, in cases where the telemedicine provider and the patient are located in different states, the malpractice laws of both states may be applicable, and malpractice insurance coverage for claims by patients located outside the state where the provider is located may vary. For telemedicine providers practicing via an independent telemedicine entity, there are regional and national carriers that offer malpractice coverage specifically for telemedicine services. From both a legal and an ethical standpoint, however, the practice of telemedicine should not alter the standard of care for any particular condition or the scope of practice for any particular provider.

SUMMARY

Telehealth is a promising means of delivering a variety of health care services that were previously unattainable in rural areas of South Carolina. The rapid evolution of video communications and networking technology in recent years has led to a dramatic acceleration in the growth of telehealth services throughout the state. As support from state lawmakers, insurers, clinicians, and patients continues to grow, so do the opportunities to utilize telehealth technology to break down previously insurmountable barriers in access to care while simultaneously improving the efficiency and cost-effectiveness with which that care is delivered.
SCIENTIFIC MANUSCRIPT

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The HPV Throat Cancer Epidemic: 
A Brief Update for Primary Care Physicians

By Kevin Zhan; M. Boyd Gillespie; Shai White-Gilbertson; TG Wall; Gerald Harmon, MD; Susan Bolick; Terry A. Day, MD

In the peak of flu season, a 49-year-old man walks into your office with throat soreness. It’s Monday and especially busy. Patients with cough, hypertension, diabetes, and flu-like illnesses have filled your waiting room. An avid cyclist and non-smoker his entire life, the man’s curious about flu, despite being vaccinated a month prior. His coworker recently took off work with similar symptoms. He’s an account executive with a national company with no medical issues, no other symptoms, and not particularly concerned but his throat has been intermittently sore for two weeks. His temperature is 98.6°F, with slightly red tonsils and some very slight, non-tender fullness on neck exam. He fits into the not uncommon diagnosis of pharyngitis/tonsillitis and—despite a negative strep and flu screen—he talks you into prescribing a round of antibiotics. His symptoms improve over the next few days. Two months later, while on a weekend business trip, he notices a neck swelling while shaving and recurrent throat soreness. He visits a drop-in urgent care clinic where examination reveals a red tonsil and cystic neck mass. Told not to worry, he leaves with another round of antibiotics and a diagnosis of tonsillitis and probable branchial cleft cyst.

Another two months pass and he develops an unusual earache and calls your office once more. You see him and find that the ear appears normal but both his tonsil and neck are swollen on the same side, this time worse than before. You refer him to an ENT specialist in town who sees him a week later. The ENT doctor orders a CT scan, which shows an enlarged tonsil and cystic neck mass. He undergoes a fine-needle aspiration biopsy of the neck cyst: metastatic squamous cell carcinoma (OPSCC), affecting the tongue base, tonsil, soft palate, posterior pharyngeal wall. Ninety-percent of OPSCC are found at the base of tongue and tonsils. Though obvious to some, oral cavity and oropharyngeal cancers are completely different in pathogenesis, anatomic location, clinical behavior, treatment, and prevalence of Human Papillomavirus (HPV) found in tumors. On intraoral examination, the beginning of the soft palate is an excellent landmark between the two areas.

Of throat cancers, HPV(+) and HPV(-) OPSCC are two distinct diseases, with different demographics, survival, symptoms, radiosensitivities, and molecular pathogenesis. Simply put, this virus has drastically changed our previous paradigm of mouth and throat cancer. HPV’s positive effect on survival is so great that alternative staging methods have been proposed—and validated in small trials—that include traditional staging (TNM), smoking status, and HPV involvement for better risk stratification. As such, some physicians may colloquially refer to these diseases as “virus-related” (HPV-positive) and “smoking-related” (HPV-negative) cancers to their patients—though HPV and smoking are certainly not mutually exclusive.

Despite decreasing incidence of smoking and all head & neck cancers overall, the incidence of OPSCC is increasing and predicted to overtake cervical cancer by 2020. Figures 1 and 2 show the climbing incidence of OPSCC and a steeper increase in the 50-64 age group. These increases are believed to be due to increasing involvement of HPV in OPSCC, up to 70% involvement in 2009 from 40% before 2000. This trend is also seen in data from South Carolina.

Unfortunately, this challenging clinical paradigm is becoming more common. This article will provide a brief review and update to the changing landscape of HPV-related throat cancers, including key issues that health professionals and primary care providers should consider.

Introduction

While “oral” cancer most often occurs in the mouth in front of the soft palate and front half of the tongue, throat cancer typically refers to oropharyngeal squamous cell carcinoma (OPSCC), affecting the tongue base, tonsil, soft palate, posterior pharyngeal wall. Ninety-percent of OPSCC are found at the base of tongue and tonsils. Though obvious to some, oral cavity and oropharyngeal cancers are completely different in pathogenesis, anatomic location, clinical behavior, treatment, and prevalence of Human Papillomavirus (HPV) found in tumors. On intraoral examination, the beginning of the soft palate is an excellent landmark between the two areas.

If throat cancers, HPV(+) and HPV(-) OPSCC are two distinct diseases, with different demographics, survival, symptoms, radiosensitivities, and molecular pathogenesis. Simply put, this virus has drastically changed our previous paradigm of mouth and throat cancer. HPV’s positive effect on survival is so great that alternative staging methods have been proposed—and validated in small trials—that include traditional staging (TNM), smoking status, and HPV involvement for better risk stratification. As such, some physicians may colloquially refer to these diseases as “virus-related” (HPV-positive) and “smoking-related” (HPV-negative) cancers to their patients—though HPV and smoking are certainly not mutually exclusive.

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More specifically, oral cavity cancers have dramatically decreased while oropharyngeal cancers are on the rise (Figure 3). Base of tongue and tonsil tumors, where HPV is most commonly involved, have risen dramatically in incidence (Figure 4). The recent HPV+ OPSCC diagnosis in a major celebrity has brought the disease a bit more into the public sphere. Yet, health provider and public awareness of HPV-driven OPSCC and vaccine coverage of HPV-associated OSPCC remains dismal at best.11,12

Human Papillomavirus (HPV) is a ubiquitous DNA virus that is classically associated with genital cancers and warts. HPV+ OPSCC begins with oral HPV infection, affecting 15 million Americans (7%) and significantly more men than women.13 HPV viral proteins E6 and E7 disrupt tumor suppressors p53 and pRB, respectively, and promote tumor formation. Serum antibodies to these proteins can be detected over 10 years prior to diagnosis of OPSCC.13 High-risk HPV16 infection, the strain associated with >90% of HPV+ OPSCC, is found in 1% of all Americans. The natural history of infection is not completely understood but most infections clear in a year for immunocompetent individuals.16 Patients with higher risks of infection include those with immune dysfunction (e.g. HIV, immunosuppression) and smokers in a dose-dependent relationship. The tetravalent vaccine (Gardasil™, Merck, Sharp and Dohme) covers strains HPV 6 & 11, responsible for genital warts, and 16 and 18, responsible for cancers.17 The vaccine is effective in preventing genital disease in both sexes19 and protects against oral HPV infection in theory. Only one large trial from Costa Rica has studied this issue and suggests possible efficacy. However, its validity and conclusions have been criticized due to methodological issues.19 Vaccines do not treat established infections and only 53% and 7% of adolescent American girls and boys, respectively, have received at least one dose (of three). With HPV causing cancers of the cervix, anus, penis, vagina, vulva, oropharynx, and other head & neck sites, continued educational and vaccination efforts are critical to reducing such preventable cancers and promoting herd immunity.20

**Risk Factors, Screening, Diagnosis**

Table 1 illustrates how HPV+ and HPV- OPSCC are clinically distinct, with different risk factor profiles and demographics. To summarize, we can sometimes find cancer in a young, middle-class, non-smoking Caucasian man, who presents with neck swelling and sore throat. This patient may undergo multiple rounds of antibiotics and see several physicians and dentists, waiting months before specialist evaluation and biopsy. At this point, his base of tongue cancer may be obvious, having grown significantly and now affecting his swallowing and voice. His treatment plan has changed significantly. Thus, it is critical that cancer be in the differential for a sore throat and that early referral is sought for pernicious symptoms. Earlier detection may allow for less morbid therapy and improve survival outcomes, as explained later on.

Unfortunately, no validated methods currently exist for early detection. Several companies are working on improved technologies and diagnostic methods but none have yet proven superior to direct visual exam. In the normal clinic patient, the mouth is relatively easy to examine with an external light source (headlight or overhead light) and two-hands-free visualization.
with gauze, tongue blades, and palpation. However, oropharyngeal examination is challenging, especially base of tongue tumors and lesions that begin in deep tonsillar crypts. Comprehensive transoral exam may be limited by a gag reflex, large tongue, or small submucosal tumors, hidden from view. Often, the specialist will be able to view these areas with flexible transnasal endoscopy, easily performed in the office setting.

Unlike oral tongue cancers and erythro-/leukoplakias, no precancerous lesions are known for OPSCC. One might expect them, given detection of viral antigens so many years in advance. However, antibodies are found in only 35% of OPSCC and it is unknown whether this actually represents a neoplastic process, latent infection, or otherwise. With the exception of unknown primaries, diagnosis of OPSCC is straightforward, as visualized lesions can be biopsied and neck masses may be analyzed with fine-needle aspiration biopsy. Routine p16 immunohistochemical staining can quickly and accurately detect HPV involvement.

### Treatment & Prognosis

Tables 2 and 3 show the latest AJCC staging criteria for OPSCC, which currently do not differentiate HPV status. Since any nodal disease implicates advanced stage (III or IV), HPV+ OPSCC patients are frequently categorized as such despite having improved survival outcomes. Moreover, current oncologic therapy is guided primarily by TNM staging. In very simplified terms, advanced-stage tumors are typically treated with a combination of chemoradiation, or surgery and radiation. Early disease (T1N0 or T2N0) is treated with transoral surgical excision +/- neck dissection and pathology-directed risk analysis for adjuvant treatment +/- post-operative radiation. Therapy is tailored to primary tumor site, clinical and pathologic factors, and patient considerations. Treatment is often multidisciplinary, involving speech pathologists, dental professionals, physical therapists, and others, with numerous follow-up appointments needed. However, problematic with this treatment scheme is that HPV(+) tumors frequently present with bulky nodal disease, necessitating high-stage classification and more morbid therapy. Common adverse effects of treatment include dry mouth, dysphagia, mucositis, neuropathy, hypothyroidism, and more. Numerous clinical trials are currently investigating de-escalation therapy for HPV+ OPSCC, with aims of finding effective, yet less morbid options.

**HPV+ OPSCC patients live significantly longer than HPV- OPSCC (median survival 131 months vs. 20 months)**

In advanced stage cancers, HPV+ positivity confers a 58% reduction in relapse risk or death compared to HPV- OPSCC. HPV+ tumors show greater radiosensitivity and advanced tumors respond more often to induction chemotherapy. Despite being more likely to present with advanced
Here's the text from the document in a plain text format:

**Summary**

HPV+ OPSCC is an emerging cancer epidemic in the US and considered an entirely different clinical entity from HPV-OPSCC or oral cavity cancers. Despite a lack of knowledge and awareness in both the general public and health practitioners, opportunities exist for early diagnosis and treatment. The notion of throat cancer in a young, previously healthy, non-smoking patient with a sore throat or neck mass may seem surprising, but this awareness is needed. Early recognition, referral, and diagnosis may allow patients to seek treatment at an earlier cancer stage with higher chances of survival. Given the availability of efficacious HPV vaccines, HPV+ OPSCC provides additional consideration for advocating routine vaccination in both boys and girls. In the future, we may see effective but less morbid therapies for HPV+ OPSCC patients.

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HPV+ OPSCC IS AN EMERGING CANCER EPIDEMIC IN THE US AND CONSIDERED AN ENTIRELY DIFFERENT CLINICAL ENTITY FROM HPV- OPSCC OR ORAL CAVITY CANCERS. DESPITE A LACK OF KNOWLEDGE AND AWARENESS IN BOTH THE GENERAL PUBLIC AND HEALTH PRACTITIONERS, OPPORTUNITIES EXIST FOR EARLY DIAGNOSIS AND TREATMENT.

Friend

Guest Editorial

By Barbara E. Magera, MD, PharmD, MMM, Charleston, SC

From the first day I met him, I knew he was different. He took the time to talk and listen. Other than medicine and surgery, dogs were his passion. We exchanged canine photos with the warmth and enthusiasm that grandparents have for their grandchildren. Mine are award winning show dogs. His are sporting dogs which captivated his heart. He proudly carried pictures of his Boykin Spaniels. Gracie was his favorite. Whenever whipping out their pictures, his face broke out in a warm smile. He then related a unique story of frolicking with his Boykins.

One late evening, he came to the ER to surgically correct a youthful body torn by gunshot. He was obviously very tired from the stresses of a surgeon’s workload. Yet, despite the pressures of the day, he took the time to inquire how my starlets were doing in the competitive world of conformation. As I fumbled with my iPad for their recent win shots, he patiently waited, relating the weekend antics of his beloved dogs. At his request, I promised to share professional photos as my dogs were competing in a major dog show.

Recently, I was told that there had been an accident. Not the usual horrific gore and guts with blazing fire streaming against the night sky. Rather the accident was rather calm. As ER staff related, the driver drove his car slowly off the road into a mailbox. While driving himself to the hospital, driver suffered a massive heart attack. I was shocked when I heard that the victim was my friend.

The Florence community grieves. My friend was a dedicated surgeon who gave unselfishly of himself to his patients. A physician who always went above and beyond any need. Despite pressure and fatigue, he was always a gentleman. The type of person who made you feel all important. His patients adored him. His staff admired him. His professional colleagues mourn him. Our broken hearts cannot fathom his loss. He was an exemplary surgeon, Christian, husband, and father. A good man now rests in the arm of the angels.

Dedicated to the soul of Dr. Edward M. Lee, Physician and Surgeon who practiced at McLeod Hospital, Florence, South Carolina.

Dr. Magera is a Cavalier fancier (Caracaleeb) who lives and practices medicine in Charleston, South Carolina.
‘Free Clinic’ Rotation for Third Year Medical Students: An Approach to Improve Clinical Experience

By Ralph McKenzie, MS; Melorah Jacque, BS; Taral R. Sharma, MD, MBA

Participation in free clinic training sites represents a unique approach to enriching medical student education. In accordance with ACGME core competencies, medical students are provided a valuable perspective fostering both personal and professional growth. Through this setting, students are exposed to opportunities to function independently, avoid malpractice, and experience patient care limited by financial constraints. Integral to training, students practice a team-based approach to care, which is demonstrated through interprovider communication. Relevant to future clinical skills testing, students gain early experience in providing care, with specific emphasis placed on patient education and preventive health maintenance. Furthermore, through adoption of free clinic practice, medical students are enriched through valuable experience, increased confidence, and a unique educational environment that allows for exposure into the dynamics dictating future medical practice.

Background

Anderson Free clinic was established in 1984 to provide healthcare for uninsured and underserved patients in Anderson County, South Carolina. Their vision is to provide essential quality primary health care regardless of the patients’ ability to pay. Most funding is sourced from individual and church donations. Resources are provided through partnerships with AnMed Health, AID upstate, Anderson County Health Department, Cancer Association of Anderson, SC Gastroenterology Association, and various Upstate homeless shelters. The clinic is staffed by 15 employees, over 350 community volunteers, and more than 150 physician, dentist and health care provider volunteers.

In 2012, over 350 patients were seen by volunteer physicians totaling a sum of over $321,100. Patients also have access to ancillary specialty clinics including a gynecology, foot care, acupuncture and cranial-sacral massage. Uninsured, adult patients who meet federal poverty guidelines (individuals with a monthly income less than $957 or family of four with monthly income less than $1962) are eligible to receive care from Anderson Free Clinic.

AnMed health has partnered with the Edward Via College of Osteopathic Medicine-Carolinas Campus (VCOM-CC) to host osteopathic medical students for the duration of their clinical training. As part of their third year curriculum, osteopathic medical students are required to serve two half days each month in the free clinic. During this time, two to three patients are assigned to each student, following an effort to match student provider with longitudinal patients. Students conduct appropriate history, physical exams, and formulate a comprehensive plan for the patient. Then, students present their findings and plan to one of two to three physician preceptors. From this, students receive verbal feedback from preceptors in an effort to improve clinical skills. Ultimately, physician preceptors are responsible for overseeing the quality of care provided to the patient and sign-off on the plan for each patient.

Free clinic exposure and volunteerism is becoming increasingly emphasized in medical student clinical education. VCOM-CC students are dispersed over thirteen South Carolina clinical rotation sites in their third year. AnMed is the only site that promotes free clinic participation to this extent. This provides students with a unique opportunity to act as a nascent physician. Detailed below, this invaluable experience, as documented in associated literature, serves to strengthen the students’ clinical confidence, knowledge and communication. Furthermore, in accordance with ACGME core competencies, students have the opportunity to enhance future medical practice.

Medical Student’s Reflections

“At the beginning of third year, my colleagues and I were very excited to start working at the local free clinic, which represented our first exposure to direct patient care prior to residency. Not only does this experience foster student growth in practicing collaboration between support staff, but it also provides a valuable opportunity to prepare for the upcoming clinical skills exam. Importantly, at the free clinic, inter-provider communication is critical in delivering optimal patient care. Lastly, by practicing alongside other health professionals, increased camaraderie can be fostered in an effort to establish a team-based approach to patient care.

Practicing at the free clinic allowed me to gain exposure on caring for my own patients. With this responsibility, I had the opportunity to manage their prescriptions, labs, imaging and practice around often challenging social situations. Due to various socioeconomic barriers, I became increasingly aware of just how critical making healthy lifestyle choices and disease prevention measures are to practicing medicine today. An integral part of patient care is sharing responsibility with patients with regard to decision-making and disease management. Rather than dictate patient care and management, I learned to seek out treatment plan that negated various financial, emotional and social barriers.

When participating in a practice-based environment, learning from patient care is essential. In this setting, student clinical decision-making is emphasized, while also preserving quality patient care. Commonly,
I found myself re-evaluating my approach to various patient complaints. From this opportunity, I further distinguished between medical preference, financial constraints, and evidence-based patient care.

Working in the free clinic increased my medical knowledge base tremendously. In fact, learning from clinical practice provided a unique opportunity to cement a framework for effective future practice. Interestingly, the emphasis on continuity of care allowed for continued growth through experience in navigating difficult clinical pictures. Most importantly, the goal of promoting education remained steadfast. In accordance with this, I routinely expanded my understanding of diagnosis, explored potential alternatives, and revised my treatment plan. Lastly, I became confident and efficient in sharing medical knowledge to benefit patients.

The free clinic experience allows for early exposure to the dynamics of systems-based practice. With the goal of optimal patient care, students are aware of the importance of delivering quality care while maintaining patient safety. Integral to practice is the need, at times, to involve other caregivers. Routinely, patients were referred for further diagnostic workups, appropriate feedback, or in compliance with preventative screening guidelines. Most importantly, students became increasingly aware of the framework of medical practice, which benefits from practicing collaborative efforts in an effort to achieve appropriate patient care.

Effective interpersonal and communication skills are vital to the free clinic experience. Operating largely by volunteers, appropriate communication between nurses, nursing students, physicians, medical students and office staff is essential in providing appropriate patient care. Important, students must develop communication skills to better understand patient complaints and provide patient education. In addition, medical students are responsible for communicating patient presentations to the supervisor. Lastly, communication is essential in discussing treatment options with patients and ensuring adequate understanding.

Gaining exposure through the free clinic helped me to establish myself as a young professional. Through this experience, I learned the importance of remaining firm in my ethical convictions, while also pursuing optimal patient care. While delivering the correct diagnosis and appropriate regimen is critical, treating patients with dignity and respect is paramount. Unique to medicine is the concept that patients have confidence in us as provider to maintain confidentiality, which is both an amazing privilege and ultimate responsibility with regard to promoting the ideal doctor-patient relationship.

**Logistics**

As previously stated, on a biweekly basis, third year medical students have the opportunity to gain insight into the unique experience that makes up the Anderson Free Clinic. As a student doctor serving those with longstanding medical needs, it is commonplace to be exposed to severe pathology that often accompanies various disease processes. This valuable exposure helps to increase medical knowledge, while also promoting understanding of the financial constraints that all too often dictate the decision to seek medical treatment for health complaints. Also, due the nature of the free clinic, a student experiences the joy of learning in an environment free of medical malpractice, instead reinforcing the benefits that accompany serving those less fortunate. On a different note, when approaching the underserved patient population, it is often relevant to stress key preventative health aspects of patient care due to the increased likelihood of improper health maintenance. Fortunately, the free clinic allows us this opportunity. Lastly, as osteopathic students, the free clinic represents a chance to improve our holistic approach to patient care, with specific aim to increase awareness to the financial and environmental aspects that limit care.

**Conclusion**

Overall, as a student serving at the Anderson Free Clinic, one is exposed to a unique perspective that few ever experience. Grounded in the principles of servant hood, the student has the opportunity to grow both personally and professionally through early clinical exposure, increased autonomy, emphasis on preventative care, and exposure to late disease presentation. Also, of note, by striving for a strong patient physician relationship, devoid of financial or time constraints, the goal of promoting continuity of care can best be established. One of the most helpful aspects of the free clinic experience is its emphasis on the team-based approach to patient care, which is a necessity of optimal patient care. On a different note, through my experience, one becomes increasingly aware of certain limitations throughout the system. Such drawbacks include long patient waiting times, delayed referral dates, serving unstaffed, application wait time for future patients, and not having the resources to provide more comprehensive care. In reflection, however, it is a blessing to have been exposed to such a unique clinical program aimed at serving not only my medical education needs, but also speaking to a higher purpose of helping those less fortunate in our society today.

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**References**


By Andrea D. Boan, PhD, MSCR; Catherine C. Bradley, PhD; Kimberly M. Fender, BS; Amy P. Cohen, PhD; James M. Charles, MD; Laura A. Carpenter, PhD

Autism Spectrum Disorders (ASDs) are diverse and rapidly growing developmental disabilities, characterized by impairments in social communication and behavioral functioning. The early diagnosis of ASDs is critical in improving outcomes for individuals and families affected by the disorder and to reduce the overall public health impact of ASDs through timely access to interventions and healthcare. This study examined trends in the age of first ASD diagnosis and socio-demographic factors influencing ASD diagnosis over time in South Carolina (SC) utilizing data from the South Carolina Autism and Developmental Disabilities Monitoring Network (SC ADDM). Results indicated that the age of first ASD diagnosis has not changed across the identified SC ADDM study years, even when stratified by gender or race. Gender, race, and maternal education did not predict the age of first ASD diagnosis; however, children with an intellectual disability (IQ ≤70) were diagnosed with an ASD at an earlier age compared to those with IQ >70. Study findings suggest that further efforts are needed to reduce the age of first ASD diagnosis in the state so that more children may have access to the treatments shown to be most effective for this population.

Introduction

Autism Spectrum Disorders (ASDs) are a set of neurodevelopmental disorders characterized by deficits in social communication skills and restricted, repetitive behaviors. Recent findings from the Center for Disease Control’s (CDC) Autism and Developmental Disabilities Monitoring (ADDM) Network indicate that 1 in 68 children are living with an ASD, a significant increase from previous estimates of 1 in 150 (2002), 1 in 110 (2006) and 1 in 88 (2008). While there is no established primary etiology or known cure, research dedicated to the study of the prevalence and characterization of ASDs among children may help improve diagnosis and outcomes through access to early intervention.

In many cases, ASDs can be diagnosed before 2 years of age; however, the age of initial ASD diagnosis has ranged from 38 to 120 months in prior studies. The disparity between the time ASDs can be diagnosed and when they are diagnosed in the clinical setting is concerning, considering the evidence that intensive early intervention improves developmental outcomes among children with an ASD. Previous research has also examined numerous factors that influence the timing of diagnosis, such as race, ethnicity, gender, parental education, cognitive functioning, and SES, but the findings are largely inconsistent.

Despite the importance of early diagnosis, there is little systematic research investigating how these factors may influence the age of ASD diagnosis over time. The goal of the current study was to evaluate trends in age of diagnosis and relevant socio-demographic factors in children with ASDs born in South Carolina (SC) between 1992 and 2000 using data from the South Carolina Autism and Developmental Disabilities Monitoring Program (SC ADDM).

Methods

SC. ADDM, a member of the CDC’s ADDM Network, has been conducting active surveillance to monitor the prevalence of ASDs among 8-year-old children in SC since 2000. The ADDM network methodology has been previously described. Briefly, SC ADDM selected 23 counties located in the Coastal and Pee Dee regions and employed a two-step approach to identify children with diagnosed and undiagnosed ASDs: (1) screening and abstraction of records of children with suspected or confirmed developmental concerns from multiple clinical and educational sources including major medical centers, the Department of Disabilities and Special Needs Boards and public school districts; and (2) standardized coding of information from records and ASD case assignment by qualified clinicians experienced in diagnosing ASDs. ASD case status is defined by The American Psychiatric Association’s Diagnostic and Statistical Manual-IV, Text Revision (DSM-IV-TR).

This study included children from the 1992, 1994, 1996, 1998, and 2000 birth cohorts whom were 8-years-old in study years 2000, 2002, 2004, 2006, and 2008, respectively. The SC ADDM study included information on: age (in months) of first comprehensive developmental evaluation, age (in months) of first ASD diagnosis documented in the record, gender, race/ethnicity (white, black, other), IQ status based on most recent cognitive evaluation documented in the record (dichotomized as ≤70 indicating intellectual disability vs. >70), as well as maternal education based on birth certificate data linkage (categorized as non-high school (HS) graduate, HS graduate, some college education). This study was approved by the Medi-
The purpose of this investigation was to provide insight into the factors influencing ASD diagnosis over time with the goal of improving the outcomes for children with ASDs in South Carolina. Results suggest that further efforts are needed to reduce the age of first ASD diagnosis in the state so that more children may have access to the treatments shown to be most effective for this population.

The average age of first ASD diagnosis varied across study years (data not shown) but was consistently around one year (13.4 ± 18.4 months) for this cohort. Although research suggests that ASD can be accurately identified in the second year of life, the overall median age of diagnosis in the US is 4.4 years, which is consistent with the findings of our study at 4.5 years. Furthermore, this study found that the initial ASD diagnosis was given approximately one year after the first developmental evaluation of any type was conducted, and this delay was relatively stable across cohorts. Access to developmental evaluations may be delayed for a variety of reasons: a lack of qualified providers who specialize in early assessment of ASD, lengthy referral processes, and a lack of information for parents and providers regarding the early signs of ASD. Consistent with the best-practice recommendations made by the American Academy of Pediatrics in 2007, routine, early screening for ASD at 18- and 24-month well-child visits may play an important role in accessing referrals for ASD evaluation and ultimately decreasing the average age of diagnosis. We may expect routine screenings to have an impact on age of first diagnosis for children born in 2007 or later.

Most of the factors hypothesized to be linked to age of first diagnosis were not found to be significant in this population. Given that autism is more common in boys than in girls (5.5 to 1 in this sample), it was hypothesized that parents and community providers may be more sensitive to ASD symptoms in boys, leading to an earlier age of diagnosis. However, our finding that gender does not predict age of first ASD diagnosis is largely supported by the literature, although findings are inconsistent. The majority of prior studies have also shown that higher parental education is linked to an earlier age of ASD diagnosis, which was not found in this SC sample.

Children with significant cognitive delays (IQ ≤70) were diagnosed at an earlier age than those without cognitive impairment (IQ >70) in this study. Readily observable or reported developmental delays in areas not related to ASD (e.g. motor skills, daily living skills) may result in early intervention or developmental evaluations, with subsequent evaluations for ASD. Parents and pediatricians may be less concerned about social delays in a child without intellectual disability and other readily apparent delays, perhaps adopting a “wait and see” approach and further delaying referrals for these children. Finally, symptoms of ASD may not cause functional impairment for some children early in life, but may become more problematic when the child enters school or encounters situations with high social demands. Delayed diagnosis in children with IQ >70 is a significant concern as these children may be more likely to reach optimal outcomes following early intensive behavioral intervention.

Although the age of first diagnosis did not decline for children born between 1992 and 2000, the age of first ASD diagnosis may decrease in later cohorts due to the ongoing focus in ASD public awareness and the increased availability of diagnostic instruments for very young children. Although public awareness about ASD has been steadily increasing since the 1990s, many of the largest public awareness efforts did not begin until after the year 2000, the birth year of the youngest children represented in this study. These include the CDC’s Learn the Signs, Act Early campaign (2004), universal screening recommendations from the AAP (2007), World Autism Awareness Day (2008), and the Autism Speaks Light it Up Blue campaign (2010). Similarly, there have been significant improvements in screening and diagnostic tools for very young children such as the Toddler Module of the Autism Diagnostic Observation Schedule – 2nd Edition (ADOS-2) which became publically available in 2012. Although the children in this study may have been too young to benefit from these efforts, ongoing research efforts are underway to evaluate the effects of heightened awareness and improvements in diagnostic methodologies on the age of ASD.
Although the age of diagnosis did not decrease during the study time period, the number of children identified with ASD over the study years increased significantly. More children are being diagnosed early (before 3 years of age), but more children are also being diagnosed later. One factor that may impact late diagnosis is the expansion of the interpretation of ASD symptoms in DSM-5 to include more mildly affected children. While the diagnostic criteria were kept consistent across the study time period, there has been a trend towards broader interpretation of symptoms. This may result in more mildly affected children being diagnosed at later ages as their social delays become more apparent in light of increasing social demands.

This study has several important strengths. Data were collected through well-established and standardized population-based surveillance system that used a consistent methodology across all study years, thus limiting the impact of changing diagnostic criteria on the age of ASD diagnosis. Furthermore, the timing of ASD diagnosis was confirmed through records-based documentation rather than parental recall, minimizing the effects of recall bias. It is also important to interpret this study in light of its limitations. SC ADDM relies on record review, thus that were lost or not available could not be included in the dataset, which may lead to missing information regarding the first ASD diagnosis. Also, some providers may give a verbal diagnosis of ASD, but may not clearly document the diagnosis in the child’s records, resulting in missing data for age of diagnosis.

The purpose of this investigation was to provide insight into the factors influencing ASD diagnosis over time with the goal of improving the outcomes for children with ASDs in South Carolina. Results suggest that further efforts are needed to reduce the age of first ASD diagnosis in the state so that more children may have access to the treatments shown to be most effective for this population (i.e. early intensive behavioral intervention). To improve the outcomes for children with ASDs, a two-pronged approach is needed. First, continued efforts to improve public awareness regarding the symptoms of ASD, as well as the benefits of early intervention, is needed, particularly for children who are not presenting with other significant developmental delays. Second, increased awareness amongst medical professionals is needed regarding the resources available for SC children diagnosed with ASD, including BabyNet and the PDD Waiver Program, particularly as many of these programs have policies aimed at targeting intervention efforts towards children diagnosed with ASD prior to the age of 3.

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Medical University of South Carolina
20 Ehrhardt St, MSC 207
Charleston, SC 29425
Phone: 843-876-1064
Email: boan@musc.edu

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**Tables**

**Table 1. Age trends in months at first ASD diagnosis across SCADDM study years (n = 493)**
* Values presented as sample frequency and mean (in months) ± standard deviation. P value based on Kruskal-Wallis test across study years.

<table>
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<td>51</td>
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<td>4</td>
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<table>
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<tr>
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</tr>
<tr>
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<td>56.1 ± 21.2</td>
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<tr>
<td>Female (n=76)</td>
<td>55.9 ± 19.5</td>
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<td>Other (n=15)</td>
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<td>HS grad (n=133)</td>
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<td>Some college (n=139)</td>
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<tr>
<td>≤ 70 (n=270)</td>
<td>54.2 ± 20.0</td>
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<tr>
<td>&gt; 70 (n=158)</td>
<td>61.9 ± 22.4</td>
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</table>

**Table 2. Average age in months at first ASD diagnosis from SCADDM 2000-2008**
* Values presented as mean (in months) ± standard deviation. P value based on Kruskal-Wallis test.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Months ± SD</th>
<th>P value</th>
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</thead>
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<tr>
<td>Gender</td>
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<td>&gt; 70 (n=158)</td>
<td>61.9 ± 22.4</td>
<td></td>
</tr>
</tbody>
</table>
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References
Do Vital Signs, Exam and Demographics Predict Heart Disease in Young Athletes?

By Dave Sealy, MD; Robert Tiller, MD; Lesslie Pekarek, MD; David Russ; Benjamin Horne, MD; Clark Sealy

Introduction

Recently, much attention has been paid to cardiovascular screening of athletes as it is now estimated that 30 million athletes younger than 18 will play on an organized sports team in the United States this year.1 Because of this, electrocardiograms, echocardiograms, and even stress testing are being studied at length. Appropriately, cost effectiveness questions are frequently raised.16 What about the basic components of every PPE that are done 100% of the time? Is there any value in the documentation of height, weight, resting pulse and blood pressure in predicting who would be at greater risk of either SCD or congenital heart disease? What about age and gender? Are they of any help in anticipating cardiac risk? To date, we have been unable to find any prospective studies that answered the initial questions regarding height, weight, pulse and blood pressure. The association of African-American race, family history and male gender with increased risk for SCD and HCM is well known.6,7,11 However, even these have been population based and retrospective. This study, on the other hand, sought to determine if there is any value in measuring vital signs, height and weight, age and gender prospectively from the standpoint of cardiac pathology and the potential for SCD.

Materials and Methods

In the South Carolina Public School District 50, students from two high schools and three middle schools are invited to receive PPEs each spring at the Self Regional Healthcare Sports Medicine Center. Approximately 400-500 athletes per year are evaluated by resident and faculty physicians. Same day stress testing, pulmonary function testing and echocardiography read by pediatric cardiologists are available at the time of the PPEs. The physical exam form contains all the questions from the PPE Pre-participation Physical Evaluation 4th edition1 with minor changes and includes all American Heart Association recommended questions10 for screening of cardiovascular disease. Student athletes are required to fill out the form with a parent or guardian and bring the signed form to the exam location. Vital signs and basic demographics are recorded including age, gender, pulse, SBP and DBP, height and weight as well as school attended, guardian/parent name and address as well as grade in school and desired sports. During the PPE, physicians repeat all of the cardiovascular screening questions and seek to elicit any abnormalities as well as attempting to determine the status of any “yes” answers. This is followed by a physical exam. During the exam, heart murmurs of 3/6 intensity or greater, diastolic murmurs, murmurs that increased with the squat to stand or the Valsalva maneuver, or those murmurs believed by the attending physician(s) to be suspicious were selected for further evaluation (Figure 1). Additionally, all carotid and femoral pulses were palpated and those believed to be abnormal were referred for further evaluation. Systolic and DBPs of >99 percentile adjusted for age and height were also assessed. Chest pain (either atraumatic or exertional), dyspnea either at rest or under exertion, dizziness, palpitations, and syncope or
near syncope with or without exertion or known cause were also evaluated. In addition, significant family history and those believed to have Marfan habitus by at least two physicians were evaluated further. All assessments were conducted in accordance with the algorithm in Figure 1. Pulmonary function testing and Bruce protocol stress testing were done by at least two physicians with privileges in these procedures, and all echocardiograms were performed by certified echo technicians. These were read by fellowship trained, board certified pediatric cardiologists.

Approval for this study was granted by the Self Regional Healthcare Institutional Review Committee with annual renewal over the five years duration of the study. All data was collected prospectively.

Statistical analyses were done using the Chi-Square statistic for count-based discrete variables such as age, gender and cardiac pathology. Other data were analyzed using Binary Logistic Regression to address continuous independent variables related to the presence or absence of cardiac pathology as the response variable. Using this technique, regression coefficients were generated and predictive models were developed and analyzed. Sets of continuous variables were analyzed using Simple Linear Regression and Correlation Analysis. Statistical analyses were conducted using Minitab Version 15.

### Table 1. Summary of Hypotheses and their results

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<tr>
<th>Hypothesis</th>
<th>P value</th>
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<tr>
<td>Cardiac pathology independent of age</td>
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<tr>
<td>DBP and weight are directly related</td>
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</tr>
<tr>
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<tr>
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</tr>
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<tr>
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<td>all ages p&lt;.05</td>
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<tr>
<td>DBP is significantly different between males and females</td>
<td>all ages x 13, 14 p&lt;.05</td>
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### Table 2. Summary of all athletes with positive cardiovascular diagnoses

<table>
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<th>AGE</th>
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<th>WEIGHT</th>
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<th>BP dias</th>
<th>PULSE</th>
<th>S/S</th>
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<td>ASD</td>
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<td>61</td>
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<td>110</td>
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<td>PDA, LVH</td>
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<td>LVH</td>
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<tr>
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<td>194</td>
<td>118</td>
<td>70</td>
<td>72</td>
<td>CP</td>
<td>MVP, LVH</td>
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</table>
**Results**

Data assessment was started with thirteen hypotheses related to associations between the different variables (Table 1). A total of 2401 athletes received PPEs (480.2/year) with 1561 male and 840 female athletes (65:35). This is a consistent male-female ratio compared to the prior four years of PPEs (61:39) in our community. The age distribution is shown in histogram form in Figure 2. We will summarize our results in the order of the listed hypotheses.

Association of our 14 athletes with positive cardiac diagnoses with age showed that no particular age was more likely to present any pathology. This confirmed our hypothesis that cardiac pathology was not age specific. Gender, on the other hand, was remarkably associated with pathology (p<.01) as all 14 athletes with detected pathology were male (Table 2). Of the 2401 initial PPEs, 137 athletes were further evaluated through either echocardiography, stress testing and/or pulmonary function testing based on the algorithm in Figure 1. However, of those who were further evaluated, only 34% were female (46/137). While this was consistent with the overall demographics of the PPE population, none of the 46 females requiring further evaluation were positive while 14/91 (15.4%) of the males were.

We found that resting heart rate (RHR) was inversely related to age as can be seen in Figures 3 and 6 but that there was no relationship with cardiac pathology (p = 0.986). However, SBP was significantly related to cardiac pathology, which was unexpected, yet DBP was not. Interestingly, male SBP was significantly higher than female in those between the ages of 11-17 (Figure 4), while DBP in males was significantly higher in ages 12 and 15-17 (Figure 5). Weight had no relation to cardiac pathology (p=0.618). However, both SBP and DBP did increase with weight, just as weight increased with age. Resting heart rate (RHR) and weight did not show a statistical association with each other, which was unexpected, but RHR and age did change inversely as was expected. Height was not associated with cardiac pathology, and we did not find any athletes with Marfan syndrome.

The most interesting result was not associated with any hypotheses prior to the research. Of the 14 individuals noted to have significant pathology, ten had murmurs felt by examiners to be abnormal. Apart from male gender, the presence of a murmur was the most likely clinical finding to be associated with pathology.

**Discussion**

Our data prospectively sought to isolate variables which might be useful in predicting cardiac pathology. Male gender was associated with cardiac pathology of multiple types. This is an interesting association since male gender is known to be associated with SCD** but not necessarily with all cardiac diagnoses. Recent data suggests, however, that males with aortic root dilatation do progress more than their female counterparts.** Age and resting
heart rate were not helpful in determining the presence of underlying cardiac disease. Though it is certainly desirable to identify life threatening disorders as early as possible, we were not able to identify age as a means of discovery. The association of SBP with cardiac pathology was initially exciting. However, this association can be explained by the increase in SBP in males and the marked higher prevalence of pathology in the male cohort. We believe that the association of SBP with cardiac pathology is not by any means causal, but simply due to the fact that the cardiac pathology group was all male. From this, one could speculate that the RHR would be higher in stressed or abnormal hearts. However, our data did not indicate RHR of any predictive benefit except that of advancing age.

Weight and height were also not associated with pathology, but increased weight was associated with increased SBP and DBP. Indeed, DBP increased with age. This was, therefore, not surprising. The association of height with Marfan syndrome (MS) is well known, but no athletes with MS were discovered in our cohort. As expected, the RHR declined with increasing age (Fig 2), but was of no value in predicting any pathology.

The association of an abnormal heart murmur with cardiac pathology would seem obvious. However, our exams specifically engaged provocative maneuvers (Valsalva, squat to stand, sitting and supine auscultations) to further elicit these murmurs. This would suggest that the physician pursuing the rare congenital cardiac defect should add provocative maneuvers, especially the squat to stand, to the PPE.

The cardiac diagnoses that were discovered in the athlete PPE cohort and the issue that brought them to further workup are listed in Table 5. These diagnoses reveal a variety of facts relevant to the study. Every diagnosis had an associated heart murmur or chest pain. Dyspnea, syncope, and palpitations were not associated with any of the significant cardiac defects discovered in our study.

There are several weaknesses to this
A greater sample size of athletes would be preferable in order to increase the discovery of life-threatening disorders. We discovered only six of the positives had potentially life threatening disorders as listed in the causes of SCD in athletes by Maron, et al.  

Two were diagnosed with HCM, three with LVH and one with a dilated aortic root. In one athlete a PDA was discovered but he returned to normal activity after ligation as per the 36th Bethesda guidelines (11). Larger numbers would clearly reveal more pathology. Yet, these results are similar to those found by other studies. Fuller et al discovered only one patient with serious cardiac pathology, 16 with “mild MVP”, and 3 with “minimal LVH”.  

In their study, no attempt was made to associate any of the parameters we evaluat-ed with cardiac pathology. Others have argued that BP is not a risk for SCD, which would mean that the 19 with elevated BPs were not at risk. Fuller et al (4) found 20/5615 athletes with hypertension of whom 5 were not allowed to return to sport due to “severe hypertension”.

Another weakness in this study is that we did not collect data regarding the participants’ ethnic background. This would have been valuable as SCD has been strongly associated with the African-American population. Retrospectively, both of the athletes we discovered with HCM were African American. However, the screening PPE form we used did not assess ethnic origin. Another weakness may have been our inability to perform an electrocardiogram on every athlete in order to increase our yield of cardiac abnormalities. This was impossible because the expense prevented us from screening all athletes in our setting. Others argue that this should not have been the case.

How valuable therefore, are these data? Our data confirm in a prospective fashion many of the prior assumptions held by sports medicine professionals. Namely, BP, pulse, height, age and weight are standard parts of the PPE, but they confer minimal to no value in predicting the risk of SCD or underlying cardiac pathology in the 10-18 year old age group. Sofi et al (16) found that out of 30,065 athletes 159 had cardiac abnormalities leading to disqualification. Of those 159 only 6 would have been discovered by the standard PPE. Their study did not individualize which demographics lead to the diagnosis in these six individuals. Baggish et al (2) found that out of 510 athletes 11 had significant abnormalities and 3 were potentially lethal. Of those 3, only one with pulmonic stenosis was identified by the standard PPE. Our data also demonstrates a prevalence of 0.58% (14/2401) cardiac pathology in this population. Of this, 0.25% (6/2410) could be considered potentially lethal. This is consistent with other authors’ predictions of such disorders. In addition, we have augmented prior retrospective data stating male gender is a clear risk factor for SCD by demonstrating a marked increase in the prevalence of cardiac pathology associated with the male athletic population. We believe, therefore, that screening female athletes would be of minimal use, if SCD discovery is the primary purpose for the PPE. However, with the increased incidence of concussions and the need to screen for eating disorders, discontinuing the PPE in females is clearly not advised.
We have provided age specific means for athletes in these age groups and documented the known increase in BP with age and weight, as well as the decline in RHR with increasing age.

Our data do clearly point to the need for physicians doing PPEs to be diligent in trying to provoke murmurs. The elicitation of murmurs was far more valuable than any symptom or historical component for finding abnormal pathology. However, murmurs have been noted in 30-70% of the athletic population. The murmurs we sent for further evaluation were those consistent with the AHA guidelines as noted above. The physician performing PPEs need to be aware of those murmurs needing further evaluation.

At this point we can only conclude that, although height, weight, BP, age and RHR are interesting data points, they are not particularly helpful when it comes to finding that elusive high risk athlete for SCD.

References
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$25,000 Signing Bonus, excellent pay and benefits. Basic health/life insurance at no cost for employee. FHC has a HPSA score of 22 which could entitle you to education loan forgiveness and AHEC funding if you meet their requirements.

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Send resume to leon.brunson@myfhc.org or mail to Family Health Centers, Inc. Attn: Leon A. Brunson, Sr. 3310 Magnolia Street Orangeburg, SC 29115. Please visit our website @ www.myfhc.org.
The Impact of Electronic Cues and Provider Education on Colorectal Cancer Screening Referral and Patients’ Screening Decision Stage

By Meenu Jindal, MD; Matthew F. Hudson, PhD, MPH; Dawn W. Blackhurst, DrPH; Kinneil Coltman, DHA; Gabriel D. McCoy, DO

Introduction
The United States Preventive Service Task Force (USPSTF) states colorectal cancer (CRC) is a particularly common cancer, and a leading cause of cancer death in the United States. Consequently, the USPSTF recommends that average-risk adults age 50-75 be screened for CRC with any of the three screening modalities: annual fecal occult blood testing (FOBT) with a sensitive test, flexible sigmoidoscopy every five years, with a sensitive FOBT every three years or colonoscopy every ten years. A structural colon examination is a preferred screening and early disease-detection modality, as it may prevent CRC via adenomatous polyp detection, and subsequent polypectomy. Zauber and colleagues observed that polypectomy results in reduced CRC-attributed mortality. These findings support colonoscopy recommendation and screening in clinical practice; randomized, controlled colonoscopy screening trials in progress may provide additional evidence.

Despite projected screening benefit, previous work suggests clinicians’ failure to recommend screening contributes to suboptimal screening rates. Enhancing recommendations may be particularly important in southern states (e.g., South Carolina), as they exhibit disproportionately high CRC mortality. Practitioners and interest groups express optimism about electronic notifications (e.g., electronic patient charts) cuing physicians and encouraging CRC discussion and referral. Beyond referrals, practitioners may influence patients toward cognitive shifts favoring screening. Sarfaty, appropriating the Transtheoretical Model of Change identifies five stages characterizing patients’ inclination toward CRC screening: never heard of CRC screening, heard of but not considering, heard of and considering, decided against screening, and heard of and electing CRC screening. Spruce and Stanford posit clinicians may then tailor screening education and recommendation to patients’ decision stage.

To enhance provider adherence with screening recommendations, we implemented a stage-based decision model in the EHR, serving as a physician cue and reminder to engage in CRC screening discussion. The second component consisted of physician education regarding patient/physician discussion regarding increasing CRC screening rates. The lead physician conveyed the merits of patient/provider discussion regarding increasing CRC screening rates. The forum also informed residents of the EHR enhancement, and reminded residents to solicit a referral preference. We particularly counseled supervising attending physicians to encourage their residents to engage patients in CRC screening discussion. Once residents encountered the EHR cue (Figure 1), providers asked patients if they had heard of CRC screening and desired referral. Informed by Sarfaty’s proposed decision stages our team classified patient responses by one of three categories: (1) patient uninformed about CRC screening and doesn’t want to be referred, (2) patient informed about CRC screening and doesn’t want to be referred, (3) patient consents to being referred. Patients classified as stage one or two received counsel on CRC and screening utility, and received a screening brochure. The provider also reassessed patients’ stage at subsequent visits. Decision classification shift (e.g., patient stage transition from stage 1 to stage 2 in subsequent visit) was a secondary outcome of interest. Residents referred patients classified as stage three to any of five CRC screening clinics.

We examined pre-intervention data from February 1, 2011 to January 31, 2012,
and compared that to post-intervention data gleaned in our post intervention period, February 1, 2012 to January 31, 2013. Our institution’s review board reviewed and approved this project.

Results
Table 1 depicts the number of clinic visits and number of patients (age 50-75) seen during the pre and post intervention time frames. Screening referrals significantly increased from 5.3% (96/1819) to 8.7% (168/1940) (p < .001), pre-intervention to post-intervention. During the intervention period, we documented 237 patients decision stage; 95% consented to screening referral, and approximately 4% reported having heard about CRC screening, but declined referral. One hundred and twenty two of 227 patients have a documented stage in the return visit. Eighty nine percent of these patients remained at their previous decision stage, 2% transitioned toward CRC referral consent, and approximately 3% shifted from referral consent to referral disinclination.

Discussion
Our results suggest an EHR-based cue, combined with provider education and CDC education material, may increase the number of patients preferring CRC screening and referral. This observation alone is not novel, given our understanding that provider recommendation is a prime predictor of screening uptake. However, our results suggest that even basic provider counsel and cues augment CRC referrals. This information may encourage resource-strapped clinics lacking education or technological innovations. Also, practitioners may debate the clinical significance of a 3.4% referral increase. However, screening’s regional variability, suggests even a seemingly negligible referral increase is clinically significant.

While our results are encouraging, we concede some study limitations. For example, our study relied solely on documentation existing in the medical record. Consequently, we are not able to determine the extent to which our population represents the universe of CRC screening-amenable patients.

Many other patient characteristics such as previous CRC knowledge, experience, exposure, and genetic risks (e.g., Lynch syndrome) may additionally mediate or predict decision stage and subsequent screening. We did not control for these potential mediators. Similarly, care coordination, social factors, or access may mediate the relationship between patients’ referral preference, provider referral and screening uptake. The study’s non-experimental design fails to control for acknowledged or unacknowledged referral mediators. Also, our study did not stratify analyses by emergent or non-emergent visits (case mix). We concede circumstances begetting clinical visits may mediate patients and providers attention to CRC discussions, decision stage assessment, and stage change. Our study also failed to account for providers’ pre-intervention CRC screening knowledge and facility with CRC screening discussion.

It is possible provider attributes (e.g., previous instruction) independently, or in concert with our intervention, precipitated stage change in our population. We also concede increased referrals, post intervention, may not reflect an expanded population of newly-identified screening candidates (i.e., more “first referrals”). Rather, our increase may result from consistently targeting particular eligible patients (i.e., an eligible patient
receiving numerous referrals). Thus, referral rates may fail to perfectly correlate with CRC screening, or CRC mortality. The actual screening rate of our clinic population is unknown; therefore, it is unclear how the referral increase of 3.4% impacts our actual screening rates. The Behavioral Risk Factor Surveillance System (BRFSS) reports 68.6% of age-appropriate South Carolinians have received either a screening sigmoidoscopy or colonoscopy, and this percentage varies by income. Lower-income South Carolinians in the less than $15,000 and $15,000-24,999 income brackets report CRC screening rates of 53.4% and 61.5%, respectively. Assuming that our clinic population falls into these lower-income strata, the study increase of 3.4% could raise the CRC screening rate to ~57-65%. Although this remains below the state average, and additional improvement opportunities abound, we believe that any referral increase enhances evidence-based practice.

Conclusion
Limitations notwithstanding, results suggest implementing an EHR, stage-based communication model and provider education in a primary care clinic significantly increased CRC screening referrals by residents. We believe this intervention advances ambulatory education of future primary care physicians, especially in an area of great public health concern. Additionally, our findings support the previous findings that physician communication and recommendation particularly influence CRC screening.

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References
About the Cover

POSITIONS AVAILABLE IN:
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The Myrtle Beach area is a wonderful place to live with its warm weather, beautiful wide sandy beaches, and laid back southern atmosphere. The area also offers diverse cultural and educational interests, entertainment venues, an array of restaurants, over 100 golf courses, excellent schools, and an impressive university influence. These are just a few of the reasons that make living and working here so great!

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rwarlick@lrmbcenter.com or
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Second Quarter 2016 Calendar

Gregory Squires, MD
Chairperson, Continuing Medical Education

April 2016
Friday
April 15, 2016
Toomey Conference Center, Greenville Hospital System| Greenville, SC
Patient Centered Medical Homes: The 2014 NCQA Standards
SPONSOR: South Carolina Medical Association
DESCRIPTION: Attend this educational luncheon to learn what PCMH is and its significance in this era of healthcare delivery. Learn about NCQA’s 2014 Patient-Centered Medical Home standards and how the SCMA can provide free assistance to your practice to the detailed task of producing documentation required by NCQA.
FACULTY: Scott Hultstrand, JD
TARGET AUDIENCE: Physicians and other interested Medical Professionals
TUITION: FREE
CONTACT: Tara Stewart (803)-798-6207:
This workshop will be held in Conference Room #2, 1st Floor – Main Hospital Entrance.
This activity has been approved for AMA PRA Category 1 Credits™

Saturday
April 16, 2016
Renaissance Asheville Hotel| Asheville, NC
First Annual Asheville Gastrointestinal Malignancies Symposium
SPONSOR: USF Health and i3 Health
DESCRIPTION: The purpose of this CME/CE-certified 1-day symposium is to provide participation with expert insights from leading investigators in treatment selection and supportive care best practices for patients with gastrointestinal malignancies.
FACULTY: Philip Philip, MD, PhD, FRCP; Andrew X. Zhu, MD, PhD; Peter C. Enzinger, MD; David H. Ilson, MD, PhD; Milind Javle, MD; Shreyaskumar Patel, MD; George A. Fisher, Jr., MD; Tanios Bekaii-Saab, MD; Marwan Fakih, MD
TARGET AUDIENCE: Oncologist, Gastroenterologists, Nurses, and other health care professionals involved in the treatment of patients with gastrointestinal malignancies
TUITION: Dependent on profession.
Please check site
CONTACT: Christi Capazzo; 1-973-928-8085 ext. 101; ccapazzo@i3health.com
Other Registration Information: Early bird discount available until March 1, 2016. Breakfast and lunch included.
Website: www.ashevillegi.com
This activity has been approved for AMA PRA Category 1 Credits™

May 2016
Friday
May 13, 2016
South Carolina Medical Association
Columbia, SC
Patient Centered Medical Homes: The 2014 NCQA Standards
SPONSOR: SCMA
DESCRIPTION: Attend this educational luncheon to learn what PCMH is and its significance in this era of healthcare delivery. Learn about NCQA’s 2014 Patient-Centered Medical Home standards and how the SCMA can provide free assistance to your practice to the detailed task of producing documentation required by NCQA.
FACULTY: Scott Hultstrand, JD
TARGET AUDIENCE: Physicians and other interested Medical Professionals
TUITION: FREE
CONTACT: Tara Stewart (803)-798-6207:
Other Registration Information: Early bird discount available until March 1, 2016. Breakfast and lunch included.
Website: www.ashevillegi.com
This activity has been approved for AMA PRA Category 1 Credits™
**South Carolina Medical Association**  
Columbia, SC  
**Physician Reimbursement Opportunities**

**SPONSOR:** SCMA  
**DESCRIPTION:** This one day course will cover new 2016 coding and reimbursement opportunities for physicians. Primary Care and other Physicians have more opportunities than ever to provide high quality, preventive care and get paid for it. Beyond annual flu shots, Medicare pays for wellness visits, certain screening blood tests, low dose CT screening for lung cancer, colorectal cancer screenings and more. Participants will be provided with a tool to help you capture the preventive and screening services your practice’s patients are entitled to. The afternoon session will be focused on Palliative Care and will discuss benefits of many different services to patient care and physician reimbursement.

**FACULTY:** Jean Acevedo, LHRM, CPC, CHC, CENTC, Acevedo Consulting, Inc. Delray Beach, FL  
**TARGET AUDIENCE:** Physicians, Physician Assistants, Nurse Practitioners, Practice Managers, Coding/Billing Professionals  
**TUITION:** SCMA Physician Members $99; Employees of Physician members $129 (must provide members license number or SCMA account number); Non-Members $169.  
**CONTACT:** Tara Stewart (8030-798-6207; taras@scmedical.org) This activity has been approved for AMA PRA Category 1 Credits™

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**June 2016**  
**Monday - Thursday**  
**June 20 – 23, 2016**  
The Sea Pines Resort | Hilton Head Island, SC  
**Pediatric Infectious Diseases Update**  
**SPONSOR:** USCSOM-PH CME Organization  
**DESCRIPTION:** Please visit www.seapinescme.com for more information regarding this course.  
**FACULTY:** Please visit www.seapinescme.com for more information regarding this course.  
**TARGET AUDIENCE:** Doctors and Medical Professionals  
**TUITION:** $725.00  
**CONTACT:** Anne Graves – 1-800-335-2582; agraves@seapines.com  
This activity has been approved for AMA PRA Category 1 Credits™

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**Monday - Thursday**  
**June 27 – 30, 2016**  
The Sea Pines Resort | Hilton Head Island, SC  
**Family Medicine Update**  
**SPONSOR:** USCSOM-PH CME Organization  
**DESCRIPTION:** Please visit www.seapinescme.com for more information regarding this course.  
**FACULTY:** Please visit www.seapinescme.com for more information regarding this course.  
**TARGET AUDIENCE:** Doctors and Medical Professionals  
**TUITION:** $725.00  
**CONTACT:** Anne Graves – 1-800-335-2582; agraves@seapines.com  
This activity has been approved for AMA PRA Category 1 Credits™
Fact:
Knowing if you have HPV—especially the most dangerous strains, HPV types 16 and 18—can help protect you from developing cervical cancer.

If you are 30 or older, ask your health care provider about getting an HPV test with your Pap test. Learn more at www.healthywomen.org/hpv.

This resource was created with support from Roche Diagnostics Corporation.
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