

# FUTURE LEADERS IN HEALTHCARE



## RESEARCH POSTER SYMPOSIUM

JANUARY 13, 2017  
BOOKER T. REAVES LIBRARY  
CHARLOTTESVILLE HIGH SCHOOL  
9:30AM - 12:15PM



UNIVERSITY  
*of* VIRGINIA  
HEALTH SYSTEM

# SYMPOSIUM PROGRAM

9:30AM-10AM  
REFRESHMENTS

10AM-11:30AM  
POSTER PRESENTATIONS

11:30AM-12:00PM  
JUDGING

12:00PM -12:05PM  
OPENING REMARKS:  
BRANDON KEMP, LABORATORY RESEARCH SPECIALIST III, UVA

12:05PM -12:10PM  
AWARD WINNERS ANNOUNCED

12:10PM -12:15PM  
CLOSING REMARKS:  
DR. ANNE PFISTER, BIOLOGY II TEACHER, CHS



# POSTER ABSTRACTS AND AUTHORS

## **1) Atrial Fibrillation**

**by: Chloe Jacoby, Mallory White, Seamus Bartels, Trejon Bryant**

*Atrial fibrillation is the most common cardiac arrhythmia in people over the age of forty. It is most commonly known as a heart irregularity, and causes the heart to beat without a steady rhythm. Research using scientific journals and interviews of a cardiologist and one of his patients were used regarding this project to find out what some of the greater risk factors and symptoms of atrial fibrillation are, and whether or not the risk factors can be thought about and avoided as teens and young adults. Atrial fibrillation is a heart disorder that can be manageable if taken care of and treated correctly. However, if careful when at a younger age, cases of atrial fibrillation can be much less severe. Diet and habits of youth and hypertensive heart disease are the main risk factors for atrial fibrillation in adults. Intake of a lot of tobacco, alcohol, caffeine, and salt, as a young person are large contributors to the condition. If informed about precautions to be taken as a young adult, less cases would occur later in life. When diagnosed with atrial fibrillation you have to air on the side of caution when it comes to lifestyle choices. Stress, lack of exercise, diet, and alcohol and tobacco intake must be monitored because they can contribute to the heart beating out of rhythm. With caution and regulation as a young adult and once diagnosed, atrial fibrillation can be a manageable condition to live with.*

## **2) Breast Cancer Treatments for Young Women in the Past Decade: Hormonal, Targeted, and Chemotherapy versus Mastectomies**

**by: Addie Brown, Frances Owen, Iyanna Chambers**

*This poster highlights three different types of breast cancer treatments and compares them to mastectomy. The three different types are hormonal therapy, targeted therapy, and chemotherapy. The group selected various scholarly articles from the UVA PubMed database. The key findings were that there is a significant difference between these treatments, and some are better than others for specific types of breast cancer in various patients. The group focused on premenopausal women 45 or younger, and it was found that chemotherapy, though it kills cancerous cells, can also kill healthy cells, resulting in discomfort during treatment. Hormone therapy can be an easier treatment if the breast cancer victim has a tumor that emanates hormone receptors. The group also learned that there is a method of finding which treatment is best for a particular patient known as gene expression. This treatment, based on personal genes, predicts whether there will be a metastasis (a spreading of the cancer) and where it will take place. Targeted therapy hones in on particular areas and hits cancer cells without affecting noncancerous cells, distinguishing it from chemotherapy. Overall, it was found that these three treatments, which are major advancements in breast cancer treatment in the past few decades, are better than the traditional mastectomy. In attempting to determine which treatment was the best, it was decided that none of the three therapies chosen were decidedly better than the others; effectiveness of treatment depends on the genotype and type of cancer of each patient.*

# POSTER ABSTRACTS AND AUTHORS

## **3) Treatments of Epileptic Seizures**

**by: Destinee McDonald, Malaysia Brice, Nahida Anwary**

*The research that was conducted was about the long term effects of Epileptic Seizures. These seizures disrupts the brain functions and limits the individual throughout their life. Not only will this disorder restrict an individual from doing their normal functions, but this disorder can take a toll on your body if not treated correctly. Over the course of several months stu and “Science in Context” to find sources that correspond with their topic. The main keywords that were used was long term, effects, and body. Students also met and talked with mentors at UVA that know a little about their topic. The main key findings were that Epileptic seizures affects the pancreas, movement of the body and also the brain in a severe way. Also when Destinee talked to her mom, who has been diagnosed with Epilepsy explains how hard it is for her to balance work, kids and her personal life all at once without overworking herself. She explains trying to balance so many things at once, which becomes stressful causes her to have a seizure. More key findings were that Epilepsy affects many parts of body, it also impairs speech, movement and social interactions with one another. In conclusion this means that individuals who were diagnosed with Epilepsy and have Epileptic Seizures tend to have more physical and mental problems than most people think.*

## **4) Fire with Fire: Alternative Treatment Methods Utilizing Genetically Modified Diseases**

**by: Chad Bobon, Jacob Floyd, Chyna Stewart, Lorena Gutierrez**

*The topic for this research was using different viruses to cure other viruses. The virus that was more focused was the polio virus, which has been used in some cases to cure brain cancer and other tumors in the human body. For this research, the procedure used included many research articles found in the UVA library with the help of a student in this field. Another site where we gathered some help and tips for the project was the school library and help from Brandon and Leah, students and scientists from UVA. According to the all the research, it has been proven that poliovirus is a very helpful virus that can attack cancer virus. “60 Minutes” video shows that a lady who suffered from a cancer tumor in the brain was submitted to chemotherapy but after they found that the poliovirus could be a change for her to attack and destroyed the virus, she decided to submit herself to this treatment and then the results consisted in no more chemotherapy for her anymore. After her first treatment of the poliovirus, she never again was submitted to chemotherapy because the poliovirus attacked the cancer tumor she had in her brain. Overall, research proves that there are viruses out there that can be very helpful to kill and attack other viruses such as the case of poliovirus attacking cancer tumors in the human body.*

## **5) Dissociative Identity Disorder Cause and Effect in Teens**

**by: Gabe Montes - Deoca, Hannah Harris, Carrington Gallihugh, Delaney Tharp**

*The topic that our group has chosen is Dissociative Identity Disorder. Over the past semester we have been researching articles that articulate what it is really like to battle this disorder throughout daily life. That was our main question that we set out to find the answer to through this project “What is it like for teenagers that struggle with this disorder day in and day out?”*

*While searching for the answer to our burning question, our research team used pubmed to look for articles that could give us some insight as to what this disorder really looks like. Although we didn't find many things about this specific disorder, because of it's lack of research, it became increasingly evident that sexual abuse and emotional trauma was a trigger of this disorder. In many cases, the patients that were studied with this disorder had endured some form of emotional trauma or abuse and this disorder was a coping mechanism. Physical abuse (71%), sexual abuse (68%), and witnessing serious domestic violence (62%) were the most common triggers of this disorder. These multiple personalities were used as a way to escape from the reality of what they have to face when they go home at the end of the day. This disorder can go as far as altering your feelings and brain chemistry. In the world of medicine DID is not really viewed as a serious mental disability, this topic lacks adequate research because of this.*

## **6) Zika Vaccine**

**by: Salethia Payne, Ava Milstein, Rosalia Perez-Martinez, & Leya Doto**

*A Zika vaccine research was mainly conducted on PubMed and websites like the Center for Disease Control and the World Health Organization. The keywords used were “Zika virus” and “Zika vaccine”. The sources obtained were both primary peer-reviewed journals and secondary sources. Zika virus is vector-borne (spread by mosquitoes) and also can be transmitted by sexual intercourse and from the mother to the fetus. There is a need for a vaccine to reduce the speed of the epidemic and its associated health risks. The symptoms are rather mild and last less than a week they are: fever, rash, joint pain, conjunctivitis (pink eye), muscle pain, and headaches. Often, those infected with Zika virus don't experience symptoms. A treatment will not be as effective as a vaccine towards the virus since people very rarely die from the symptoms. The risk of Zika is mainly birth defects and Guillain-Barre syndrome. There are currently various types of vaccines in development to address this health crisis. It will also be necessary to evaluate cost-effectiveness when choosing an approach to treat Zika. Since vaccines have been effective toward other flaviviruses it gives strong evidence that the Zika vaccine is possible. Preliminary testing on rhesus monkeys has shown positive results of efficacy of a vaccine. This and other evidence shows that a Zika vaccine is realizable and will be produced in the next few years.*

# POSTER ABSTRACTS AND AUTHORS

## **7) ADHD diagnosis in children: How and why gender is an effector (P2)**

**by: Maia Shortridge, Marisol Rodriguez, Kris Hange, and Brendan McCall**

*As of 2014, 14.1% of boys and 6.2% of girls are diagnosed with Attention Deficit and Hyperactivity Disorder. This disorder inhibits people from staying on task, remembering things, staying still, staying quiet at the appropriate times and many other things. In order to understand this disorder, its symptoms, and its effects it is important to understand why and how gender is an effector in the diagnosis of ADHD. In order to research this topic, a thorough analysis of journals, studies, and research papers was done in order to gain a complete understanding of this topic. Once the research was completed, it was easy to see why and how gender is an effector in the diagnosis of ADHD. According to the research, boys tend to show their symptoms through externalization whereas girls tend to internalize their behavior and frustrations. Because boys tend to be more outright with their symptoms, they are diagnosed sooner and more often than the girls who tend to get distracted, quiet, and do not show those symptoms more closely related to the general knowledge of ADHD. This research has made it clear that in order to give equal opportunity to both boys and girls suffering with ADHD, everyone must be more aware of all symptoms regarding this disorder. Unfortunately, this research is limited in its overall effect due to the lack of one concrete way to test for ADHD, the vast spectrum of symptoms, stereotypes and assumptions about the disorder, and lack of funding.*

## **8) A Study on the Toxicity of Crumb Rubber (P2)**

**by: Naomi Holmes, Lucas Reny, C.C. Smith, Redoane Kondo**

*The topic of this research project was the potential health hazards caused by exposure to toxic chemicals in crumb rubber, particularly for soccer goalies, and the thesis was that exposure to crumb rubber causes damage, particularly cancer, to athletes' health. Research was conducted by searching the U.Va Database BioMed at the University of Virginia Claude Moore Health Sciences Library, using key words that included "crumb rubber," "carbon black," "health risks of carbon black," and "crumb rubber and cancer"; another source of information was articles on Toxipedia.org on the Internet. Key findings in the research were results showing that several chemicals in the material composing crumb rubber are toxic, leading to health problems for individuals who are exposed to them through skin contact, ingestion, and inhalation, since some of the toxic substances contained in crumb rubber are released into the air. The most common effect of human exposure to these substances is cancer: at least 200 young people have died of cancer, particularly lymphoma, after playing on synthetic turf, and most of these victims were soccer goalies, who are most immediately exposed to crumb rubber because they often dive and slide into it. Toxic compounds in the crumb rubber of synthetic turf endanger those who are frequently exposed to them, and although companies who manufacture and market crumb rubber may attempt to suppress research that reveals the harmful effects of the material, awareness of the issue is nevertheless necessary because of the potent outcomes of exposure to crumb rubber.*

**9) Post Traumatic Stress Disorder in Children: Risk Factors and Effects**  
**by: Evan Blow, Kiana Stinnie, Ryan Allen, Sage Prior**

*The thesis was to investigate what the risk factors and effects of PTSD (Post Traumatic Stress Disorder), are in children. To research this thesis, relevant articles and studies were gathered through the PubMed database. Keywords used to search the database were: PTSD, trauma, development, childhood psychology, CBT, play therapy, neglect, child abuse, EDMR, psychopathology, and sexual assault. After reading through these articles, important data and information was noted. This was then organized into an outline, and later the poster. One of the most important facts discovered was how common the disorder is. PTSD affects 15.9% of children who have experienced a traumatic event. 30 to 40% of children who have experienced physical or sexual abuse will develop the disorder. The main risk factors found were: birth via Caesarean section, female gender, previous trauma, preexisting mental disorders, family functioning, and low social support. The most significant effects found were: separation anxiety, PTSD persisting into adulthood, development of other mental disorders, impairment of the HPA axis, and high rates of suicide. The significance of these findings is that children in unhealthy environments, such as family dysfunction and low social support, should be given extra assistance and supervision in the event of trauma. The effects of trauma reach far beyond simple emotional distress. These effects can severely impact a child's life, even to the point of suicide. This shows that the disorder poses a significant health risk to a large number of children.*

**10) The Evolution of Medication and Prejudices Behind HIV/AIDS in the United States**

**by: Hunter Reny, Rachel Manto, Amina Osman & Khalil Sardar**

*HIV/AIDS has been a serious issue in the United States for several decades. The research topic focused on advances in number of HIV/AIDS treatments in the United States and changes in the stigma since the 1980s. To conduct the research, the databases Pubmed and Google Scholar were used. Keywords used included "evolution of treatment for HIV/AIDS in the United States" and "infection rates of specific demographics in the United States". It was found that most statements regarding HIV/AIDS from the 1980s were incorrect. False claims about the level of contagiousness of the disease, and its exclusivity to the homosexual population were spread. Anti-gay sentiment from 1980s fueled the false claims toward HIV/AIDS. Modern research shows that at least 33% of people affected by HIV/AIDS were heterosexual and that contracting AIDS is actually extremely rare for HIV positive individuals, falsifying the claims of the past. The outlook on HIV/AIDS has changed significantly over the last three decades in the United States. The old idea that HIV/AIDS only affects homosexuals has been proven wrong as national statistics regarding infection rates of diverse demographics have been published. Overtime, treatments for HIV positive individuals has greatly improved. The number of FDA approved drugs to help suppress the effects of the virus have more than doubled since the 1980's. As more people become educated of the true nature of the virus, the fight against HIV/AIDS becomes clearer.*

# POSTER ABSTRACTS AND AUTHORS

## **11) Anorexia Nervosa: Media's Effect on a Forgotten Epidemic**

**by: Emma Strock, Carter Gillaspie, Jonathan Dameron, and Rachel McEl-downey**

*Starting in the 1980s because of advances in technology, media, and a shift in beauty standards, anorexia nervosa became an epidemic amongst adolescents and thirty years later, it still poses the same threat on society that it did years ago. Dating back to ancient times, being heavier was better. In fact, ad campaigns that ran from the 1930s-1960s promoted the idea of women gaining weight in order to impress men. Eating disorders weren't unheard of, but before the late 1970s, they were very rare. Anyhow, the 1980s marked a fashion revolution and for the first time, "the perfect body" was described as tall, thin, and lean. As technology and social media became a bigger part of daily life and more people's lives were constantly being displayed to the public, thinner celebrities inspired compatriots to thin out as well. It is important to recognize that changes in the media were not the only reason young people began losing weight; societal changes saw more citizens joining the workforce and therefore, becoming more active and fit. Nevertheless, this was a major change that caused hysteria amongst the young men and women who were being exposed to these new standards, and in an effort to conform and feel accepted, millions of people, from ages ten to forty, developed eating disorders. When it broke out, anorexia nervosa got some of the attention it deserved however, it quickly became and still remains a forgotten epidemic.*

## **12) Causes and Treatments of Migraines**

**by: Aidan Rourk, Alexis Flores, Brett Martin, Diego Zamora**

*The main ideas focused on are the causes and treatments of migraines. Migraines are at the present time incurable but there are ways to reduce the symptoms associated with migraines. The research on migraines was conducted by going to the UVA library and using articles and journals from the PubMed resource. Research was also conducted on google where valid resources from medical websites was found. Through this research it was discovered that migraines can be caused by environmental factors and genetics. Imbalances in brain chemicals and certain triggers, for example stress and certain types of food and food additives can cause migraines. Risk factors such as family history and gender can increase a person's chances of getting a migraine. A brain chemical called serotonin may play a large role in migraines. The levels of this substance drop during a migraine attack. Serotonin regulates pain in the nervous system, and when the amount of serotonin lowers it may cause unwanted effects from the trigeminal nerve, which is a major pain pathway. The intensity of migraines can be reduced by using methods such as mindfulness and a change in diet. Overall, migraines are a common occurrence that will not be shied away anytime soon. Thirteen percent of American adults suffer from migraines, and since there is no cure, research on the subject will not stop. Researchers are still studying the role of serotonin in migraines which may result with a definitive cause of migraines, where a cure can then be derived.*

### **13) The Issue of Misdiagnosis of Adolescents associated with Attention Deficit/Hyperactive Disorder**

**by: AnnMarie Barfield, Jasmine Hayes, Che'yenne Shelton, and Daeja Wade**

*In the topic of ADHD, there are many different aspects that can affect how a child will react to them seeing themselves getting different results from their peers. In this poster, the research is based on how the diagnosis of male children differs from that of female children in the history of this disorder. In the process of gathering information, there was a large web searching field available for use. This site was called PubMed. The keywords that were used to narrow the categories were ADHD in adolescents, ADD and ADHD treatments, and the evolution of ADD and ADHD. ADHD affects 5 out of every 100 children in the United States. In Taiwan, during the years 2000-2007, a study was done on gender ratios. This article starts off with a percentage of how ADHD affects school-aged children more than double the percent of how much it affects adults. It then states that "there has been an increasing body of research that has argued that ADHD is not a male-dominant disorder". This article goes on to prove that while males are more likely to be diagnosed, females still have the disorder, yet have hidden it or have less revealing symptoms. All of this means that while males are diagnosed more often, over the time period of ADHDs existence, tests and studies have become more accurate at pointing out whether or not a female has the symptoms and helps her receive treatment just as easily.*

### **14) The Evolution of Schizophrenia Treatments**

**by: Gaia Sorensen, Julie Maddex, Kelechi Emeonye, Quintus Flannagan**

*Research was done on the evolution and history of the treatments, and the current treatments for the illness. The aim of the research was to provide a background on the disease and to illustrate the way medicine has changed over time for the better. Information was gathered from a variety of article databases focusing on UVA's PubMed and Virgo databases. Peer reviewed articles were found using variations of the search terms, "Schizophrenia treatment," "History of schizophrenia," "Electroconvulsive and insulin shock therapy," and "Schizophrenia and society." It was found that schizophrenia was originally believed to be related to religion and caused by demonic possession. Thus the original treatment for schizophrenia was prayer and exorcisms. In the late 1800s, when schizophrenia was beginning to be recognized as an actual illness, medical treatments emerged in the form of certain physiologically based therapies that focused on changing the way the brain functioned as a means of limiting the outward symptoms of schizophrenia. In the 1950s, the first generation of antipsychotic drugs were developed. This medical advancement was revolutionary in terms of treating mental illness. The 1980s saw the next generation of antipsychotics emerge. The drugs had the ability to chemically control symptoms of schizophrenia. Currently the aim for doctors is to mix available schizophrenia treatment options to get the best results for individuals. This research is evidence that medicine has been evolving for the better through history. Nowadays people have options for their care that are safer and more efficacious than ever before.*

# POSTER ABSTRACTS AND AUTHORS

## **15) Effects of Children's Epilepsy on Parents**

**by: Torain Braxton, Kknowledge Rawlings, Kiah Ross, Jan Coleman**

*The research was about the sociological effects on a parent from aiding their epileptic child. The understanding of how the child themselves is clear, but no one really looks in how parents and the family is affected. How does this immense challenge make a change pertaining to the stress of the parents? The amount of seizures and development of the epileptic child can cause stress and worry to the parent. A majority of parents that gave input on the amount of stress untaken have said "There has been a split between my family. One parent would stay with epileptic child, and the other would stay with the other children. The attention is not equally spread throughout the family, because parents take on the responsibility to monitor the child suffering seizures. 10-14 year olds suffer from the seizures. This worries the parents, who eventually starts to think about how these seizures will affect their independence after they have matured. The search engine PubMed, Google search, and other Epileptic websites was used to research the following keywords Epilepsy, normal activity, family care, stress, life, and Epileptic children. Based on the facts found, the burden on the caregivers can lead to jealousy, and separation within the family. The importance of this search was to zoom in on the effects toward the parents, who deal with the responsibilities of raising an epileptic child. Supplying care for the child can cause a gap within the communication of the family.*

## **16) Emotional Abuse during Adolescence**

**by: Anya Haught, Christian Vik, Matt Haworth, Anna Tran**

*The effects and relevance of emotional abuse in adolescents was researched. The following points were studied: how it affected the lives of the children, how the abusers came about, and how this form of abuse goes so unnoticed. Emotional abuse is the most common form of abuse because of its wide variety of ways of abusing. It was narrowed down by what was needed to know, using key terms in the search engine, and figured the best way to further understand our topic. Interestingly enough, most abusers were not abused as children. The patterns are not easy to detect because of this clause. Other findings that were the severe developmental effects that emotional abuse can have on a child's life. "Previous data have suggested that the high levels of stress hormones associated with child maltreatment can damage the hippocampus, which may in turn affect people's ability to cope with stress later in life." The child will not know how to love and won't learn to accept themselves for who they are because they have been convinced that they are something awful, a burden, and worthless. Other findings include the increased chance of mental illnesses. "... not being treated or recognized the way it should be. The symptoms are all there, but it such an abuse that isn't talked about that no one understands that it could very well be happening to people they know. Last year, there are 702,000 child victims of abuse and neglect.*

## **17) Sickle Cell Anemia Effects on Athletes**

**by: Tahlia Tutt, Humberto Fossi, Jerry Harris, Jamil Fitch-Warfield**

*The topic of our research is sickle cell anemia(SCT) and the effects it has on athletes. Research was conducted at UVA, using the database pubmed to gather all necessary information. A couple key words that were used in order to find information were “effects of sickle cell anemia on athletes”, and “what is sickle cell anemia”. The research that was done showed that sickle cell anemia is a lifelong disease that is inherited from a person’s parents and that it occurs when there is an abnormality that affects the haemoglobin in the affected person’s red blood cells. The severity of the disease varies from person to person. SCT is most commonly found in west Africa and in mixed African Americans. Results of research showed that 23 in 2,462 athlete deaths from ages 12 to 22 were related to SCT. During extreme workouts, athletes that are affected by SCT are known to unpredictably collapse, and in some cases die. Most sports deaths related to SCT occur in college football, where approximately 7% of deaths were caused by the disease. As well as suffering from SCT’s effects on the field, people with SCT are more susceptible to immunodeficiency viruses, as well as viruses by unusual organisms. In conclusion, the research conducted by our team showed that while the severity of SCT can vary from person to person, athletes that are affected by the disease need to be extremely careful to not overwork their bodies.*

## **18) Diagnosis and Treatments of Dissociative Identity Disorder (DID)**

**by: Leanna Knisley, Jake Farruggio, Jade Tyler, and Chamiqua Chambers**

*Dissociative identity disorder is a difficult psychological disorder to identify. It is often misdiagnosed for other trauma based disorders such as borderline personality disorder and posttraumatic stress disorder. DID develops during childhood as a result of physical and/or sexual abuse. However, it is passed for other anxiety disorders and children don’t receive the proper treatments so it continues to develop until specialists diagnose it into adulthood. Treatment then becomes acute and extensive. There are no known cures for DID but therapies and medications may help. The most common forms of treatment include hypnosis, psychotherapy, cognitive-behavioral therapy, and the use of antidepressants and antipsychotic drugs. The resource used was an experiment that included 30 individuals but this project only focuses on three individuals with dissociative identity disorder who received dynamic deconstructive psychotherapy. The trial of treatment was conducted over a 12 month period where each participant received the same amount and the same kind of therapy. The purpose was to study how the disease is diagnosed and the effectiveness of therapy. The results were staggered amongst the different participants because the severity of each case affected the outcome. The severity can vary greatly as a result of amount of abuse, the time in between abuse and the start of treatment, and the individual themselves in terms of personality. DID continues to be misdiagnosed and remains a serious problem in society. Treatment for this disorder should start as soon as possible to avoid extensive treatment and reduce the amount of severe cases.*



# ACKNOWLEDGMENTS:

CHARLOTTESVILLE CITY PUBLIC  
SCHOOLS ADMINISTRATION

CHARLOTTESVILLE HIGH SCHOOL

UNIVERSITY OF VIRGINIA  
SCHOOL OF MEDICINE

UVA STAFF EMPLOYEE  
ADVISORY COMMITTEE

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