

CROSSROADS

THE OFFICIAL NEWSLETTER OF THE PREMED SCENE



Rising Stars in Medicine: Alena Wicker

Dear medical newsletter readers,

Happy September! We hope you've had a strong start to the school year (and hope that you are taking restful study breaks)! Today, we bring to you the most updated news in the field of medical research! We are introducing a new monthly newsletter topic: Rising Stars in Medicine! These articles will cover the stories of individuals at the forefront of making a difference in the medical field. Evonna Chisom is our first Rising Stars in Medicine writer, talking about the inspirational Alena Wicker! Then, Ilana Saidov focuses on ways of approaching inflammatory breast cancer. Siri Nikku talks about recent findings regarding correlations between cardiovascular health and premature deaths. Next up, Adeba Mukul explains how parents of children diagnosed with cancer feel about their interactions with clinicians long-term. Finally, Evonna concludes by explaining how gender can impact the relationship between patients and physicians.

Please enjoy reading The Premed Scene's September 2022 Medical Newsletter! Till next month.

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Aprile Bertoma



Rising Stars in Medicine: A Shining Generation: Alena Wicker

By: Evona Chisom

Alena Wicker, a teenager has been accepted to university at the age of 13 years old! Alena holds great potential and has made significant strides in her studies from a young age. Growing up, Alena first went to public school until bullying began to interfere in her studies due to other students' envy of her academic prowess. After this instance, Alena was homeschooled and instantly progressed through her education, but especially well in Biology. Once in fifth grade, Alena transferred back to public school. All the while, Alena followed her mother's handmade curriculum at home which included several high school-level courses. Even during the widely known COVID-19 pandemic, Alena took the opportunity to expand her knowledge with more course loads. As of May 2022, Alena has been accepted as a student at both Arizona State University and Oakwood University, where Alena is working towards earning two undergraduate degrees in biological sciences.

Moreover, Alena Wicker is a rising entrepreneur and philanthropist. For instance, Alena has created the Brown STEM Girl (BSG) scholarship. The Brown STEM Girl is part of an organization that aims to cultivate a world in which girls of color can study STEM. The scholarship is based on evidence that by removing the financial barriers to university, high-potential minority students with a dedicated scholarship can enable those to excel in their course work, graduate, and continue their path to making a difference in the world through STEM.

Already, the University of Alabama's Heersink School of Medicine has accepted Alena into its Early Assurance Program for 2024. Not to mention, Alena has participated in remote research for the Jet Propulsion Laboratory in La Canda Flintridge, California. Despite all the achievements, Alena's major goal is to graduate from medical school to help people and work for NASA.

References

"Creating a World of Girls of Color in Stem through the Brown Stem Girl Scholarship." *The Brown STEM Girl Foundation Scholarship Program*, <https://bsgscholars.brizy.site/>.

Page, Sydney. "She Just Got Accepted to Medical School. She's 13." *The Washington Post*, WP Company, 22 July 2022, <https://www.washingtonpost.com/lifestyle/2022/07/20/alena-analeigh-wicker-college-stem/>.

Good Morning America, Aryana Azari. "This 12-Year-Old Genius Has Her Sights Set on Becoming a NASA Engineer." *Good Morning America*, 12 Apr. 2021, <https://www.goodmorningamerica.com/living/story/12-year-genius-sights-set-nasa-engineer-76923842>.

Immunotherapeutic Approaches to IBC

By: Ilana Saidov

Inflammatory breast cancer, or IBC, is a highly aggressive and metastatic type of breast cancer. It is the deadliest form of this type of cancer as it is responsible for almost ten percent of deaths. Since it is not easily diagnosed, women with this form of cancer tend to have a worse outcome, or prognosis, than women with other types of breast cancer. Additionally, IBCs spread much quicker and are at a locally advanced stage when they are diagnosed. These properties make cancer more difficult to cure which is why it is vital to find the most effective treatment.

Since there aren't any IBC-specific treatments, the overall survival rate is dismal as TN IBC patients are given the same treatments as noninflammatory TN IBC patients. A case report by Kharel introduced the use of neoadjuvant chemotherapy with T-cell checkpoint inhibitor pembrolizumab to treat a TN IBC patient. This approach, which consisted of chemotherapy, immunotherapy, and surgery, resulted in the TN IBC patient feeling clinically well and without showing signs of reoccurrence of the disease.



The successful outcome for Kharel's patient resulted in the use of various front-line agents. These agents included tumor-infiltrating lymphocytes (TILs) and immunogenic cell death (ICD) inducers with pembrolizumab. During ICD, dying cells release immunostimulatory molecular patterns and cytokines to support phagocytosis. This process enabled the cell to engulf antigens and establish immunological memory. This type of memory is useful for long-term suppression of metastasis, resulting in an increased chance of patient survival.

Sources: Alonso-Miguel D, Fiering S, Arias-Pulido H. Proactive Immunotherapeutic Approaches against Inflammatory Breast Cancer May Improve Patient Outcomes. *Cells*. 2022;11(18):2850. <https://doi.org/10.3390/cells11182850>

Inflammatory breast cancer: Details, diagnosis, and signs. American Cancer Society. (n.d.). Retrieved September 25, 2022, from <https://www.cancer.org/cancer/breast-cancer/about/types-of-breast-cancer/inflammatory-breast-cancer.html>



Cardiovascular Disease: The Rise of Premature Deaths

By: Siri Nikku

With people living longer, noncommunicable diseases are becoming more common to deal with.

According to the World Health Organization, cardiovascular diseases (CVDs) are the leading cause of death globally. In just the United States, more than 868,000 Americans die of heart disease, stroke, or other cardiovascular diseases annually; cardiovascular diseases are taxing, costing \$214 billion a year to the health care system in the US and causing \$138 billion in lost productivity from premature death. In terms of the groups of people impacted by CVD, men are more likely to get CVD compared to women. The age of the target population is older people, specifically 50 and older; there is a higher risk of getting CVD as one ages. However, from the 17 million deaths of people under 70 due to noncommunicable diseases in 2019, 38% were a result of CVDs. CVD-related deaths have been rising in the younger populations in recent times.

This rise might be due to urbanization making Western diets more accessible, creating a sedentary lifestyle, and etc. Risk factors include high low-density lipoprotein (LDL) cholesterol, diabetes, smoking and secondhand smoke exposure, obesity, unhealthy diet, and physical inactivity. There are also physiological factors such as high blood pressure, high blood cholesterol and high blood sugar, which are connected to social determinants like aging, income and urbanization. Heart disease and stroke varies worldwide due to health inequities. Specifically, people from lower-income countries who have CVDs and other noncommunicable diseases are more at risk compared to people in higher-income countries. This is because they have limited access to effective and equitable health care services. As a result, for people in such countries, figuring out they have a CVD or other noncommunicable disease happens too late so they die at a young age. A difficulty that could come up is that it's a common conception that only older people are at risk for heart disease and stroke, younger people might not take precautions from a young age, which could make them more at risk.

To prevent early deaths, there can be actions done to prevent heart disease and stroke like decreasing the risk factors, creating standards of care that are accessible to especially low-income countries, improving and increasing health system capacity to care for patients with CVD, and observing disease patterns to make informed decisions globally. For those who already have heart disease, treatments can consist of aspirin, beta-blockers, angiotensin-converting enzyme inhibitors; and statins. Surgical operations and medical devices are also available and should be made more accessible to people in low-income countries. Well-known organizations that can help the efforts to combat CVD include the World Health Organization (WHO), Million Hearts Initiative, Center for Disease Control (CDC) and specifically the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), National Institute of Health (NIH), National Center for Health Statistics (NCHS), American Heart Association, World Health Federation, and the U.S. Department of Health and Human Services.

References

National Center for Chronic Disease Prevention and Health Promotion. (2020, October 07).

Heart Disease and Stroke. Retrieved October 2, 2021, from <https://www.cdc.gov/chronicdisease/resources/publications/factsheets/heart-disease-stroke.htm>

NHS. (2018, September 17). Cardiovascular disease. Retrieved October 2, 2021, from <https://www.nhs.uk/conditions/cardiovascular-disease/>

World Health Organization. (n.d.). Cardiovascular diseases. Retrieved October 2, 2021, from https://www.who.int/health-topics/cardiovascular-diseases#tab=tab_3

World Health Organization. (2021, June 11). Cardiovascular diseases (CVDs). Retrieved October 2, 2021, from <https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-cvds>





Parent-Clinician Relationships within Pediatric Oncology

Adeba Mukul

When a child is diagnosed with cancer, there is a ripple of change and adjustment through all of said child's relationships. One relationship that is particularly characterized by a child's cancer treatment is the parent-clinician relationship. While there has been research on parent-clinician relationships for children with cancer, there is a dearth of information on what parent-clinicians relationships look like a year after initial diagnosis. Previous research has found that shortly following a child's diagnosis of cancer, 25% of parents have challenging relationships with their child's clinicians and 30% of clinicians also struggle with communication, among other things, with the parents of their patients. This study, conducted by the Dana-Farber Cancer Institute, takes a look at what exactly happens with this relationship after a year of a child's treatment.

This study of 150 parents and 49 oncology clinicians was carried out through a series of surveys. Nearly 20% of parents experienced challenging relationships with clinicians, with a similar proportion of parents reporting the same challenges 1 year later. Although more than 60% of relationship challenges had improved by the 12-month survey, a comparable proportion of parents experienced new challenges. The results of this study suggest that there needs to be more support for parents through treatment to build a stronger relationship between oncology clinicians and parents. Caring communication behaviors, like holding occasional family meetings and adapting to the parent's communication style, can all be potential ways to deepen the parent-clinician relationship.

Works Cited:

Mack JW, Jaung T, Uno H, Brackett J. Change in the Parent-Clinician Relationship Throughout the First Year of Treatment in Pediatric Oncology. *JAMA Netw Open*. 2022;5(9):e2230503. doi:10.1001/jamanetworkopen.2022.30503





The Influence of Gender on Doctor-Patient Interaction

By: Evonna Chisom

For the longest time, there has been a perilous role between doctor and patient in the role of healthcare delivery. Though this is made glaringly obvious during a medical visit. Both the medical professional and patient bring their sociodemographic characteristics, expectations, attitudes, beliefs, and communication styles to the medical encounter. A study performed by the Department of Family and Community Medicine at the University of California at Davis tested female and male physicians on their practice styles and behaviors. A plethora of new adult patients was randomly assigned to clinics at a university medical center and was videotaped. The examination was designed to provide a unique strategy for assessing the effect of gender on interactions during medical visits and further survey patient satisfaction and utilization of healthcare services.

The results signified significant differences in the practice style behaviors of male and female doctors. Female and male patients were treated differently despite any equal factors which indicated that health providers may make medical decisions based on gender-related considerations. In recent years with the upward trend in female physicians, it has been noted that female doctors devote more time to psychological counseling and preventive services than male doctors. However, male physicians spent more time on technical practice behaviors like physical examination and medical history taking.

Noted, these results make be influenced by patients having preconceived notions of female physicians based on stereotypes, or traditional role expectations. In this case, the patient responds to the physician based on these expectations. Another observation was female patients visited clinics more than their male counterparts. Furthermore, it was observed that female patients of female physicians were more satisfied, and continued to make more medical visits and higher total annual medical charges. Probable causes for this outcome were the fact that their visits included more preventive services, fewer technical practices, and fewer discussions on harmful intake of substances and substance abuse.

Gender is one of many factors included in medical intervention and should be considered in relationships between doctor-patient interactions. However, the increase in information about gender differences does not insure that clinical practice or medical education or clinical practice will change. Doctor and patient gender can impact the physician-patient interaction and its outcomes. For this reason, the development of strategies for the implementation of knowledge regarding gender differences is for the distribution of medical care that is both high-quality and gender-sensitive.

References

Bertakis, K. D. (2009). The influence of gender on the doctor-patient interaction. *Patient Education and Counseling*, 76(3), 356-360. <https://doi.org/10.1016/j.pec.2009.07.022>