



MEDIC MAGAZINE

AMD

**Losing sight of the
future via the
degneration of
eyesight**

Talent Show!

**The Senior Outreach
Program brings joy into
senior homes through
singing and dancing**

FEBRUARY EDITION

Volume 2 | Issue 2

MEDIC Organization



TABLE of CONTENTS

Sneak Peek into the Lab 02

An update from our research teams

Looking into the Future 03

The newest plans for MEDIC in 2025

Senior Outreach: Talent Show! 05

Bringing smiles and laughter to seniors

AMD: Losing Sight of the Future 07

How degeneration of the eyes affects vision

Nurses in Peril: Help those that Help 09

Our final event of the year

Sneak peek into the lab



Low cost diabetes medical technology

Our Diabetes team has moved into the second phase of the project, with the goal of developing a non-invasive and continuous monitoring system to detect early diabetic ketoacidosis (DKA). The team is working on compiling a scope review to highlight the lack of existing research in biomarkers which can be used for early DKA diagnosis. Literature reviews will continue throughout summer and plan to finish around November.

Galvanic vestibular technology

GVS is a non-invasive brain stimulation technique that affects the firing of the vestibular system by conducting an electrical current to the mastoid process behind the ears through electrodes (2-pole system). The research has since evolved into a 3-pole system and our team aims to determine if 3-pole GVS induces improvement in motor performance when compared to 2-pole GVS. Publishing has been completed for data.

Cancer Profiler Precision Medicine

Our Cancer Research Team (CREPE) is contributing to work that attempts to identify biological patterns within cancer patients of various types. The team is progressing a software pipeline that works with pathological image representations from different types of cancer, which supports future analysis.

IBD/Crohn's Monitor Prediction System

Our Crohn's and IBD Team have completed the preliminary rounds of research and have been hard at work contacting doctors and professors for stakeholder engagement. Biomarker research is currently being done to establish detection tools for target. Our team is currently being trained on technical skills.



Looking into the Future



2025 begins with future plans and the same hope to continue lending help to those diagnosed with chronic disease

January has passed, and a month into 2025, the MEDIC Foundation is already planning more events for all teams to partake in. There is no doubt that 2025 will be an even greater adventure than 2024, with plans that continue to brew. With the solid foundation established,

MEDIC looks forward to everything planned in the advance. The Events team is hard at work with planning various events for students and graduates alike. The research teams are hard at work funneling resources into groundbreaking technology that will help alleviate the pain of patients with chronic disease.

As 2025 begins, we are looking forward to new events and progress. With expansions across teams, MEDIC continues its growth in more ways than one.



The MEDIC Foundation is UBC's non-profit student-led chronic disease research and advocacy hub. Founded and led by UBC biomedical engineering students and partnered with the UBC School of Biomedical Engineering, we are finding new ways to conduct innovative research and solve real-world problems through our

projects that look to create devices that tackle different chronic diagnoses. Student driven, we seek people who are passionate about our values and goals to join our cause. Our sub-teams each specialize in the combined successful operations of our organization as we strive to collectively improve the lives of people who have chronic disease.

Expectations of our organization is to improve the general and daily lifestyles of the people living with chronic disease. Student-run and student-led, MEDIC is driven by the passion and innovation of young minds that extend beyond just an academic setting.

Senior Outreach: Talent Show!

Join us as the MEDIC Foundation entertains Seniors with their talents! From singing to instruments to dancing, there was a show for all around.

Senior loneliness is a growing concern that affects the mental, emotional, and physical well-being of older adults. As people age, they often experience life changes such as retirement, the loss of a spouse or close friends, and decreased mobility, which can lead to social isolation. Without regular social interactions, seniors may struggle with feelings of sadness, boredom, and even depression. Studies have shown that chronic loneliness can contribute to cognitive decline, weakened immune systems, and an increased risk of conditions such as heart disease and dementia.

One major factor contributing to senior loneliness is the lack of family and community support. Many elderly individuals live alone, far from their relatives, or in nursing homes where they may have limited contact with loved ones. Modern lifestyles, where younger generations are busy with work and responsibilities, can leave seniors feeling forgotten or neglected. Additionally, physical limitations such as hearing loss, vision impairment, or mobility issues can make it harder for them to engage in social activities or even leave their homes, further deepening their sense of isolation.



To address senior loneliness, communities and families must take proactive steps to foster meaningful connections. Encouraging older adults to participate in social programs, volunteer work, or hobby groups can provide them with a sense of purpose and companionship. Technology, such as video calls and social media, can also help bridge the gap between seniors and their loved ones, allowing for more frequent communication. By promoting inclusive and supportive environments, society can help alleviate loneliness among seniors and improve their overall quality of life.

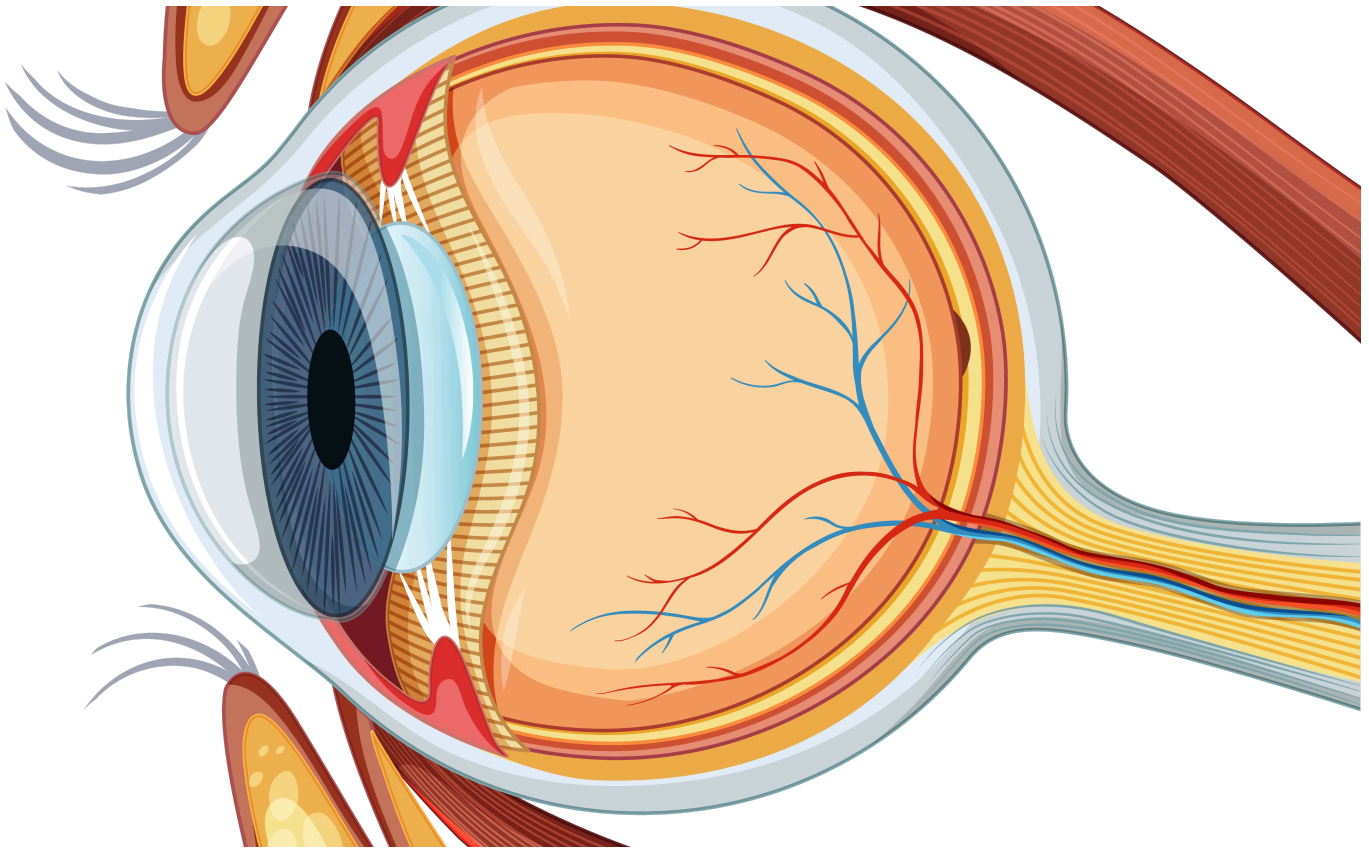
In addition to social programs and technology, intergenerational connections can play a crucial role in combating senior loneliness. Initiatives that bring together seniors and younger generations—such as mentorship programs, shared housing arrangements, or community events—help foster meaningful relationships and a sense of belonging. These interactions not only

benefit seniors by providing companionship and emotional support but also allow younger individuals to gain wisdom and perspective from older generations. By strengthening these connections, society can create a more inclusive and supportive environment where seniors feel valued, engaged, and less isolated.

Ongoing research is exploring new treatments, such as gene therapy and stem cell therapy, which may offer better outcomes in the future.

MEDIC brings their talents to senior homes at Casa Mia, where volunteers show off their many talents in a show that is designed to unite generations. From dancing to singing to playing instruments, our volunteers played a big part in cheering up seniors during the holiday season. Everyone had a great time, as shown by the cheers, chortles, and laughs. Volunteers put their own spin on talents, resulting in a fantastic show design to bridge a generational gap.





AMD: Losing sight of the future

BY: GINA ZHANG

PHOTOGRAPHY CREDIT BY
CANVA

Age-related Macular Degeneration (AMD) is one of the leading causes of vision loss in older adults. It affects the macula, the central part of the retina that helps us see fine details. As the disease progresses, everyday activities like reading, recognizing faces, and driving can become increasingly difficult. There are two main types of AMD: dry (atrophic) and wet (neovascular), each with different effects and progression rates.

Dry AMD is the more common form and develops gradually as the macula thins with age. A buildup of drusen, yellow deposits of cellular waste, can interfere with retinal function. Over time, this can lead to gradual central vision loss. While dry AMD progresses slowly, it can still significantly affect daily life, particularly in advanced stages when large areas of the macula break down.

Wet AMD is less common but more severe. It occurs when abnormal blood vessels grow beneath the retina, leaking blood and fluid. This leakage causes scarring and rapid damage to the macula, leading to sudden vision distortion or loss. Early detection is crucial, as treatments like anti-vascular endothelial growth factor (anti-VEGF) injections can slow the progression and, in some cases, even improve vision.

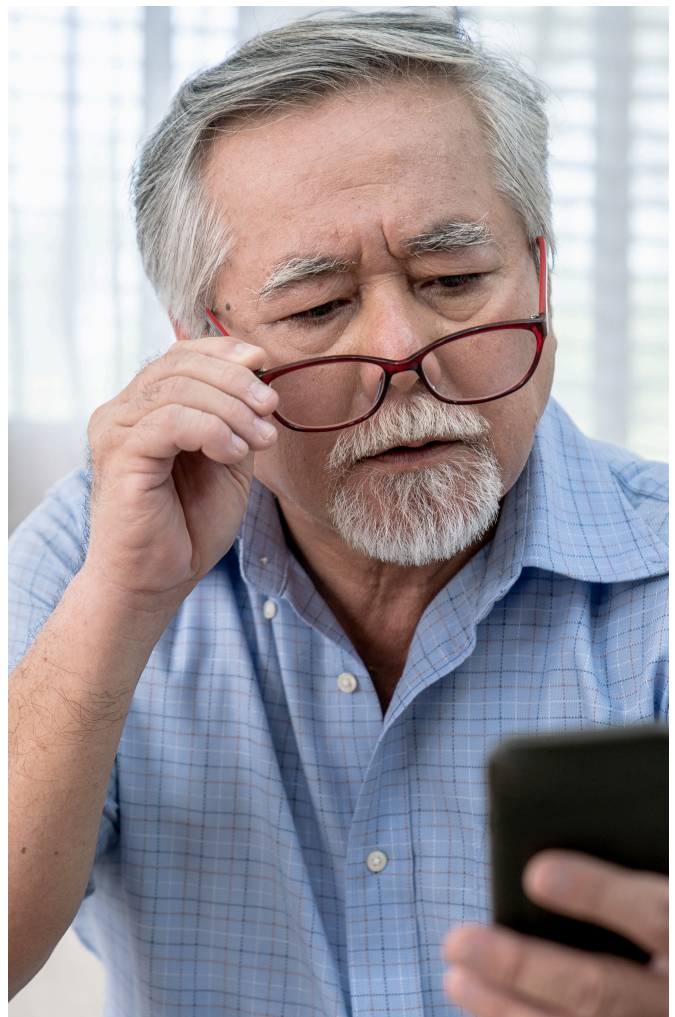
The exact cause of AMD isn't fully understood, but several risk factors increase the likelihood of developing it. Aging is the biggest factor, as the condition mostly affects people over 50. Genetics also play a role, meaning a family history of AMD can raise the risk. Lifestyle factors like smoking, an unhealthy diet, and excessive UV exposure can further contribute. Eating a balanced diet with leafy greens, omega-3 fatty acids, and antioxidants may help slow the disease's progression or lower the risk of developing it.

Diagnosing AMD typically involves a comprehensive eye exam, including vision tests, a dilated eye exam, and imaging techniques like optical coherence tomography (OCT) and fluorescein angiography. These tests help eye doctors detect early signs of AMD and determine its severity. Regular eye exams are important, especially for people at higher risk, since early detection can help preserve vision for longer.

Ongoing research is exploring new treatments, such as gene therapy and stem cell therapy, which may offer better outcomes in the future.

Learn more here:

https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/age-related-macular-degeneration?utm_source=chatgpt.com





Nurses in Peril: Help those that Help

Mental health is a crucial aspect of overall well-being, and for nurses, maintaining good mental health is especially important. The demanding nature of their profession exposes them to high levels of stress, emotional exhaustion, and burnout. They provide care and comfort to others, often at the expense of their own mental and emotional needs, making awareness and support systems essential.

BY: GINA ZHANG

PHOTOGRAPHY
CREDIT BY CANVA

Nurses regularly face intense workloads, long hours, and emotionally charged situations. They witness suffering, loss, and trauma on a daily basis, which can take a significant toll on their psychological health. The pressure to make critical decisions quickly, often in life-or-death situations, adds to the stress they experience. Over time, without proper coping mechanisms, this chronic stress can lead to anxiety, depression, and even post-traumatic stress disorder.

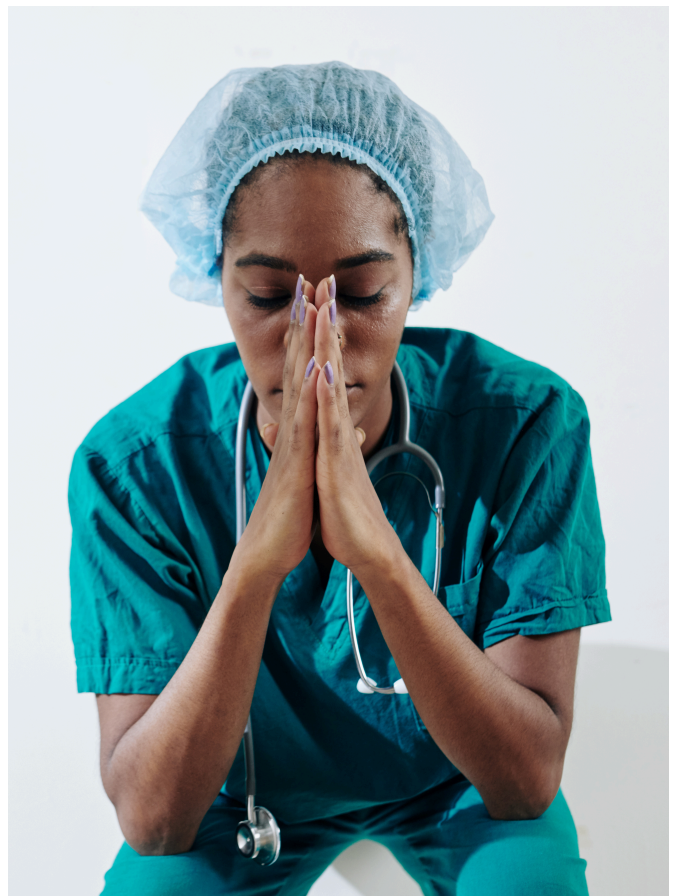
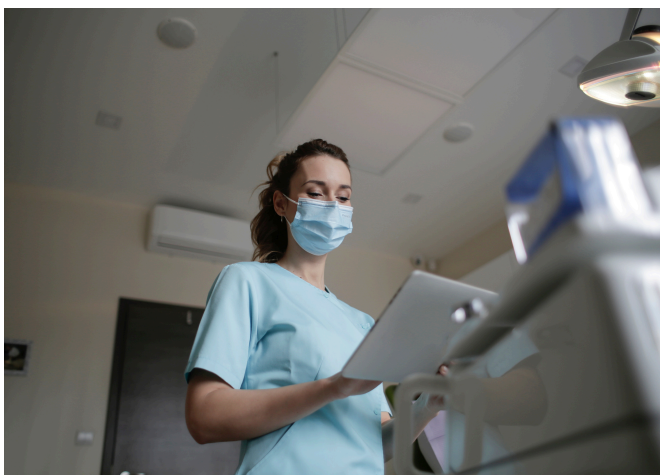
Self-care plays a critical role in maintaining mental wellness. Nurses must be encouraged to take breaks, engage in activities that bring them relaxation, and seek support when needed. Practicing mindfulness, maintaining a balanced diet, exercising regularly, and getting sufficient rest can all contribute to improved mental resilience. Finding ways to disconnect from work and engage in fulfilling personal activities is also essential in reducing burnout and sustaining long-term well-being.

Mental health awareness for nurses is not just about individual responsibility but also about systemic changes in the healthcare industry. By prioritizing mental health, implementing supportive policies, and fostering an environment of compassion and understanding, nurses can continue to provide the best care possible without compromising their own well-being. Recognizing the importance of mental health in nursing is a step toward a healthier and more sustainable future for both caregivers and patients alike.

Despite the challenges, mental health among nurses is often overlooked. Many feel obligated to suppress their emotions and continue working through exhaustion, fearing that seeking help may be perceived as a sign of weakness. This stigma prevents many from accessing the mental health resources they need, ultimately worsening their well-being and affecting the quality of care they provide.

To address this issue, fostering a culture of support and understanding within healthcare environments is essential. Hospitals and healthcare institutions should prioritize mental health by providing accessible counselling services, mental health days, and peer support programs. Encouraging open discussions about mental health can also help break the stigma and allow nurses to express their concerns without fear of judgment.

Learn more here:
<https://www.cfmhn.ca/>





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