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CHOATE PUBLIC HEALTH

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Graphic by Elaine Zhang '21

ALLEVIATING COLD SYMPTOMS

By Amanda Li '21

The long-dreaded cold season has arrived and it comes with a slew of symptoms that make sleep, work, and afternoon activities just a little bit harder. Busy schedules and never-ending homework may leave some unable to seek the best remedy of all: sleep.[1] With that in mind, here are some simple in-dorm remedies to stave off cold-season symptoms.

1. Stay Hydrated

Colds naturally leave you dehydrated, so make sure to drink up and keep your body hydrated by keeping a water bottle nearby.[1]

2. Drink Hot Soup/Tea

Hot broth-based soups like chicken noodle (for meat-eaters) and miso (for vegetarians and vegans) can alleviate congestion and soothe a sore throat. Hot teas pair well with honey and can help to reduce inflammation to aid a weakened immune system.[2]

3. Take a Shower

The steam, humidity, and heat of a hot shower will alleviate aches and pains, clear up nasal congestion, and reduce coughing. Showers can also release stress and tension from the body and help with fatigue.[2]

4. Gargle Warm Salt Water

For a simple remedy that can provide relief from a sore throat, add a teaspoon of salt to a cup of warm water. Gargle the mixture for a few seconds and then spit.[1]

5. Throat Lozenges

Throat lozenges increase saliva production which relieves throat irritation. In addition, they often include vitamins and other ingredients that help to boost the immune system and minimize throat soreness.[3]

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MEDICAL MARIJUANA: EFFECTIVE OR MISINTERPRETED?

By Anya Miksovsky '20

Recreational marijuana is a heavily contended issue, whereas the usage of medical marijuana is seldom explored. The United States Food and Drug Administration (FDA) has yet to recognize or approve its medicinal value, except in two extreme cases of epilepsy.[1] And while legalized to various degrees in 29 states, applications of cannabinoids (active chemical ingredient in marijuana) remain illegal under federal law.[2]

However, it is estimated that several million Americans are currently using marijuana as treatment for a variety of inflictions.[1] Notably, marijuana is demonstrated to be an effective low-grade painkiller, alleviating the chronic pains that many elderly people struggle with, and is particularly effective in treating nerve conditions and multiple sclerosis. In contrast to other painkillers, marijuana stands out as it is less dangerous and addictive than opioids, and unlike various other methods of treatment, the side effects of marijuana are relatively few. Sufferers of nausea, PTSD, Parkinson's Disease, epilepsy, and inflammatory bowel disease have all reported the drug's marked success.

Because there have been no vetted clinical trials on large scales, the FDA is understandably hesitant to approve of marijuana's medicinal application.

However, due to the drug's current legal status, widespread studies have yet to be conducted. One recent review of the evidence conducted by the National Academies of Science, Engineering and Medicine discovered little correlation between usage of the drug and marked improvement in conditions not including pain, nausea and multiple sclerosis. Because there have been no large-scale clinical trials, the FDA is understandably hesitant to approve marijuana's medicinal application. The lack of evidence, along with the potential for the drug to be abused, is why 15% of Americans are not in favor of medical marijuana.[3]

However, proponents of marijuana who make up the other 85% point to the fact that it is reasonably difficult to conduct studies on a banned substance. Note that clinical trials are generally made up of hundreds of thousands of people over tens of years in order to pass inspection. And the federal government has demonstrated a lack of interest when it comes to pursuing these clinical trials.

"Between its outlaw image, controversial legal sta-

 Graphic by Jacqueline Zou '20

tus and complex makeup — the cannabis plant contains more than 400 individual chemicals — marijuana's action in the brain and body is in many ways a mystery," explains Dr. Sanjay Gupta to CNN, whose 2013 documentary *Weed* examines the ways Americans use marijuana medicinally. Lack of evidence, in this case, is not a refutation of it.[4]

At the very least, proponents argue that the FDA take a more relaxed stance on marijuana, currently misclassified as a schedule 1 drug (the most restrictive and dangerous category) alongside heroin and ecstasy, despite the fact that no one has ever died of a marijuana overdose. It is precisely for this reason that marijuana may be preferable to opioids when it comes to choosing a painkiller.[5]

Furthermore, many doctors acknowledge that patients may opt to pursue marijuana's medicinal use based upon its reputed benefits without the knowledge or oversight of the doctor. Because marijuana is viewed negatively by society, patients feel embarrassed to broach the subject with their medical advisor. Such concealment may more easily lead to abuse or unnecessary use of the substance.

According to Harvard physician Dr. Peter Grinspoon, "My advice for doctors is that whether you are pro, neutral, or against medical marijuana, patients are embracing it, and although we don't have rigorous studies and 'gold standard' proof of the benefits and risks of medical marijuana, we need to learn about it, be open-minded, and above all, be non-judgmental." Removing judgment that rests upon intrinsic societal beliefs is crucial. "Otherwise," warns Dr. Grinspoon, "patients will seek out other, less reliable sources of information; they will continue to use it, they just won't tell us."[3]

Multiple sclerosis severely affects the body's central nervous system, causing nerves to deteriorate or become permanently damaged.[6] Post-Traumatic Stress Disorder is a serious debilitating psychiatric disorder linked to depression and suicidal thoughts.[7] Generally speaking, conditions such as multiple sclerosis and PTSD have proved hard to remedy through standard treatment. Medical marijuana may provide alleviation to sufferers of these conditions. While it is apparent that more effective studies must be undertaken for medical marijuana to be commonly prescribed, it is also necessary to keep an open mind.

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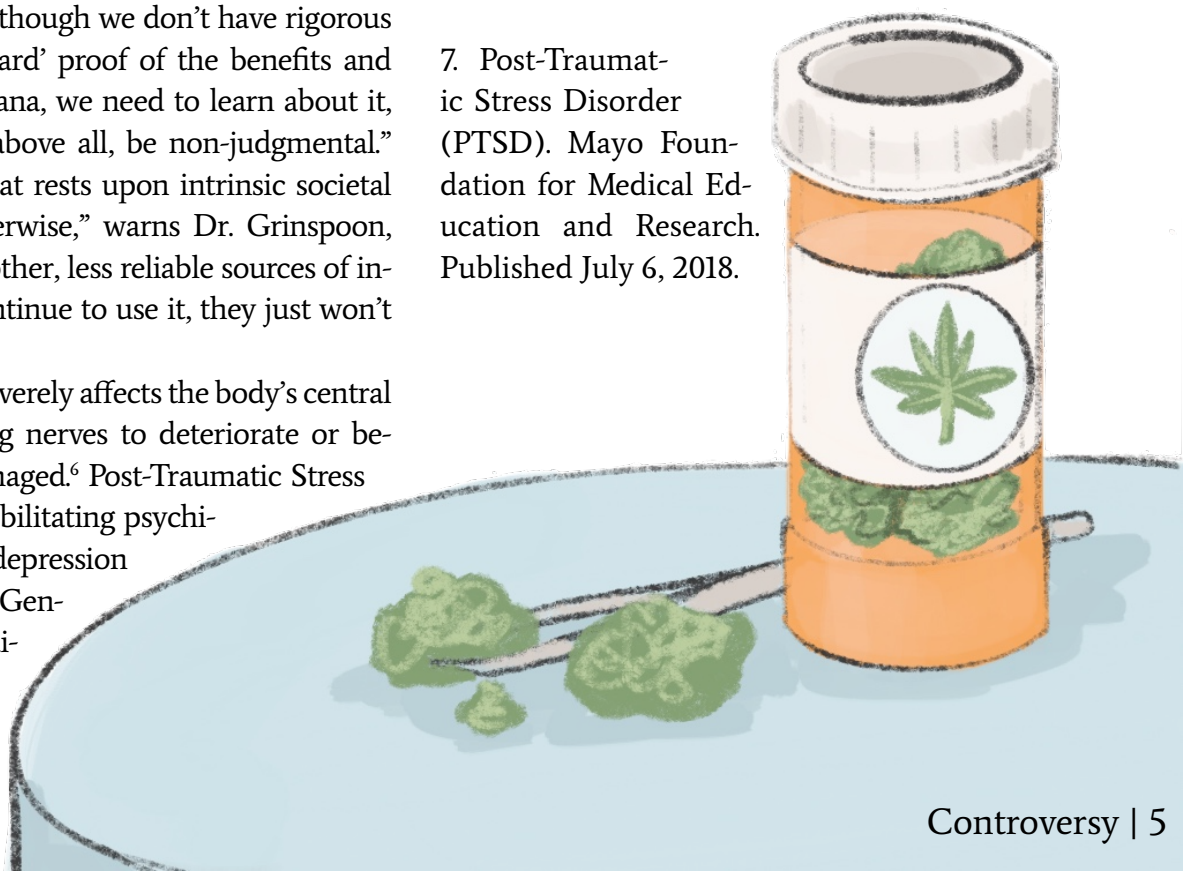

SOCIETY'S HEALTH IN THE HANDS OF FEWER DOCTORS

By Allison Kleinstein '21

The medical system is entrusted with the responsibility of supporting and improving the health of the collective society. However, this significant role may become progressively more difficult to uphold because new reports reveal that the global supply of doctors will not be able to keep pace with the rising population. According to the World Health Organization (WHO), the health industry is currently short 4.3 million health care workers.[1] Although this is already causing implications for many health care workers and patients, it is the future of this shortage and its significance that make up the primary concern. It is likely that the supply of healthcare workers will not meet society's demands in the coming years, which could have serious consequences. It is projected that the demand for physicians will grow 17% by 2025.[1] A lack of physicians could result in a lower standard of care and time constraints on doctor-patient interactions. Such consequences can lead to dramatic increases in the price of consultations, making it incredibly difficult for many individuals to afford medical care.

The current health workforce is aging, and there are not enough medical school graduates to replace them. Older healthcare workers are retiring or finding higher-wage jobs, and there is little incentive for the younger generation to take their place primarily because of those jobs' demanding hours and relatively low pay. Mercer, a human resources consulting firm, estimates that there will be 51,500 new nurse practitioner positions, 400,000 new nursing assistant openings, and

Graphic by Nico Decker '20

446,300 unfilled home health aide jobs by 2025.[2]

Although medical schools have increased their enrollment by almost 30% since 2002, there is not a steady matriculation of students into the health workforce. The Association of American Medical Colleges (AAMC) suggests a multifaceted approach. In addition to continuing the increase in medical school enrollment, it is believed that innovation in care delivery and payment methods, the use of new technologies and more effective use of patient care teams, and delegating more responsibilities to registered nurses and physician assistants will be necessary to reverse the shortage.[3] Furthermore, the AAMC is not only asking for federal support to create 3,000 new residency positions every year for the next five years, but also endorsing programs such as the National Health Service Corps, the Conrad 30 Waiver Program, and other federal incentives to motivate healthcare workers to join understaffed specialties and work in underserved communities.[4] The Third Global Forum on Human Resources for Health hopes to strengthen political support for sustainable human resource development and develop availiable and affordable frontline health services.[5]

Many of these solutions are only applicable in developed countries with better access to resources; yet, the deficits are most severe in more remote areas and developing countries. In his article, Mustafa Al-Shamsi of Iraq's Ministry of Health addresses these problems with a new plan to reform the medical education system. He believes that speeding up pre-clinical training will have a minimal negative impact on the performance of post-graduate healthcare workers. With a reformed curriculum, more doctors can be trained more efficiently and effectively.[6] A meta-analysis study by Hamdy et al. found that the correlation between medical school and post-graduate residency performance is relatively low. Condensing medical training to three years, especially in developing countries, could dramatically increase the supply of healthcare workers if their training focused on highly relevant issues to their region. For instance, in many developing countries, it would be more beneficial and applicable for doctors to study treatments for pneumonia instead of learning how to do heart transplants, an operation that requires rare high-technology facilities.[6]

Condensing medical training to three years, especially in developing countries, can dramatically increase the supply of healthcare workers if their training focused on highly relevant issues to their region.

As the impact of the healthcare workforce shortage deepens, it is crucial that policies are implemented to evenly distribute healthcare workers and increase the supply of doctors that are stationed around the world. Without this, the effects of the shortage will continue to increase, leaving a growing society with no available or adequate health care.

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DITCH THE CLIF BARS?

Graphic by Kate Bailey '21

By Sabahat Rahman '21

Recently, protein bars have flooded the market. Brands like *Kind* and *Quest Bar* have become a staple for people who need quick and portable sources of energy. Not only are these bars delicious, but they also contain large amounts of protein, fiber, and other nutrients necessary for athletes.

However, protein bars also come with drawbacks. While they are branded as being healthy and nutritious, many of them can be just the opposite. A study conducted by Protectivity (a health and sports insurer) found that 18% of sampled protein bars contained more sugar than a Krispy Kreme doughnut![1]

The bottom line is: while protein bars contain essential nutrients that are beneficial for people looking to fuel workouts, they often contain a lot of sugar as well as artificial ingredients.[2] Some effective alternatives can be found in nature: nuts contain high levels of protein in addition to healthy fats, dried edamame is filled with protein, and fruits are nutrient-packed. Minimally-processed foods like these provide the same fuel and energy while also being much healthier alternatives to protein bars.

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PLANNED PARENTHOOD CANNOT BE DEFUNDED

By Lara Selçuker '21

The very mention of Planned Parenthood in a discussion about women's health can divide a room. Despite the fact that Planned Parenthood's health centers provide reproductive care to around 2.4 million people every year, it seems to be perpetually threatened by defunding.[1]

Planned Parenthood provides essential health care services including 24-hour helplines for those struggling with reproductive health, treatment for sexually transmitted infections (STIs), cancer screenings, as well as general check-ups and treatments.[2] These services are not only provided to women, but are available to anyone who finds themselves in need of competent health care.

While it can be tempting to associate Planned Parenthood solely with abortion, that is only one part of the numerous services that Planned Parenthood offers.[1] Planned Parenthood not only serves as the nation's largest provider of sex education, but also offers a multitude of non-abortion-related services to the general public. Regardless on where you stand on the topic of abortion, Planned Parenthood should not be defunded. It is important to remember that defunding Planned Parenthood would have devastating consequences for everyone who relies on its affordable care.

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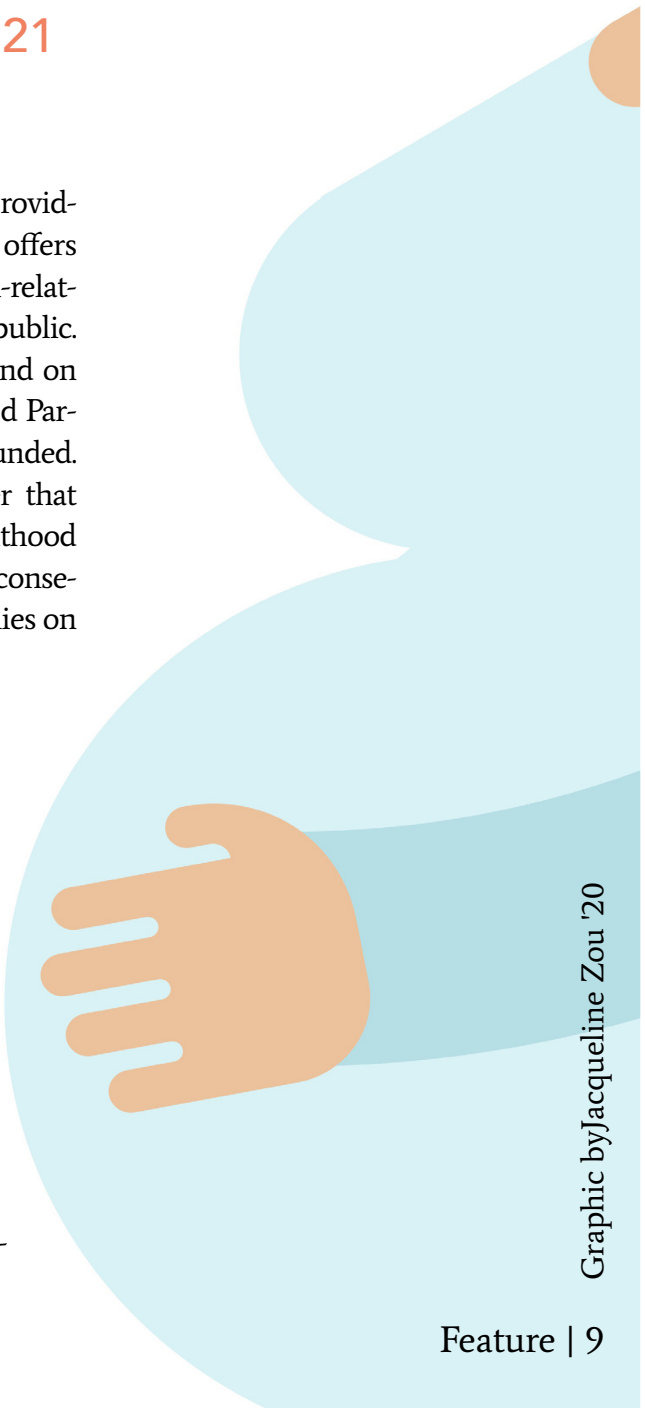

Graphic byJacqueline Zou '20

LEPROSY:

By Linda

Although the medical field has made monumental discoveries about numerous diseases, the general public is still ignorant of many others. One disease demanding public research and attention is leprosy, also known as Hansen's disease, which has gained a negative reputation due to sheer misunderstanding.

Bacterium

Research regarding leprosy remained largely stagnant until 1873, when Dr. Gerhard Hansen pinpointed the bacterium responsible for this disease: *Mycobacterium leprae*.[2] Symptoms become visible three to five years after contraction because *M. leprae* is a slow-growing bacteria with a long incubation period.[1] Although *M. leprae* has been researched for quite a while, it is difficult for scientists to study the bacterium due to its inability to colonize and create a cell culture.[3] The bacterium can only survive for a short amount of time outside of its host, which is either a human or a nine-banded armadillo.[1]

Symptoms

M. leprae attacks the peripheral nerves and causes damage to the skin, creating lesions, ulcers, rashes, and sores all over the body. Symptoms vary depending on the type of leprosy contracted (refer to table below). In the later stages of untreated leprosy, the infected individual loses sensation in the hands, feet, and face due to permanent tissue damage.[1] Over time, the body may reabsorb a digit or extremity — leading to the past misunderstanding that leprosy causes limbs to fall off.[2] If left untreated, leprosy can lead to permanent disfiguration or deformities in areas of the body. However, once a person has started treatment for Hansen's disease, they are no longer contagious.[4]

Treatment

Leprosy is now easily curable. The most common treatment is multidrug therapy (MDT). Dapsone used to be the primary medication for curing leprosy, but after *M. leprae* developed resistance, medications have been added to the treatment to prevent further resistance.[5] Patients with PB Leprosy have a MDT regimen that includes Dapsone and Rifampicin and sometimes Minocycline. Patients with MB Leprosy have a regimen that includes Rifampicin, Clofazimine, and Dapsone. Most patients that undertake MDT are usually cured within six to twelve months, but patients with more severe cases of Hansen's Disease may take a few years to be cured completely.[6]

Societal Perspective

For thousands of years, the atmosphere revolving around Leprosy was exceptionally stigmatic. Before Dr. Hansen's discovery of M. Leprae, people infected with leprosy were considered to be sinners, making the disease a punishment from God. In the past, discriminatory laws were passed to prevent the infected from riding trains and voting. The social stigma revolving around the disease caused many patients to isolate themselves in places called Leprosariums or Leper Colonies. Many of the infected were separated from their families and forced into these

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colonies.[1] Over time, patients of the Leprosariums established their own communities and cultures in these quarantined sites. Some patients choose to stay in these colonies due to the ongoing prejudice against leprosy-infected people.[7] The remnants of these Leper Colonies can be found in many places, such as the Molokai island of Hawaii where six leprosy patients remain.[8] While many Leprosariums around the world still operate today, they also act as hospitals for leprosy patients or homes for the descendants of the originally infected people.

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Major Differences Between Different Types of Leprosy

Tuberculoid	Lepromatous	Borderline
Paucibacillary Leprosy (PB)	Multibacillary Leprosy (MB)	
Mild, less severe	More extreme	A mix of both
Few patches of discolored skin color (pale)	Widespread bumps, rashes, etc.	
Numbed skim (nerve damage	Numbness, muscle weakness, nose, kidneys, and reproductive organs affected	
Less contagious	More contagious	

ROHINGYA H
OPPRESSION THROU

By Aarthi K

To the government of Myanmar, the Rohingya people do not exist.

The Rohingya people are a Muslim minority group that composes about 2% of the population of Myanmar.[1] They are native to the Arakan state, and have a distinct language and culture that separates them from the rest of the country.[1] Through centuries of discrimination and erasure, the struggles of the Rohingya culminated in 1982, when they were stripped of their citizenship by failing to prove their nativity to the country as a minority ethnic group. As a result, over 1.5 million Rohingya are currently facing a health crisis compounded by violence.[1]

As both refugees and residents of Rakhine State, the Rohingya face many obstacles in accessing basic health care.[1] The Rohingya people are kept in internally displaced persons (IDP) camps, as they are considered illegal aliens in Myanmar.[1] It is very difficult to exit these camps in order to receive health treatment, even in extenuating circumstances. In many situations, pregnant women were unable to leave the camps to get treatments or give birth because they were not given permission to enter hospitals.[3] Additionally, there are many limits on access to food, water, and basic sanitation.[1]

Graphic by wherever this is from

The failure to meet these basic needs has led to a dire health crisis for the Rohingya people. Due to complications with receiving necessary care and nutrition, the child mortality rate amongst Rohingya is 224 per 1000, as compared to 77 per 1000 for non-Rohingya also residing in the Rakhine state.[1] In Malaysia, about 12% of Rohingya children have never been vaccinated, and therefore have increasingly high rates for contracting measles, polio, tetanus, and diphtheria.[1] For pregnant women, health care is nearly impossible to access, leading to a maternal mortality ratio of 380 per 100,000. The Rohingya people are also suppressed by a two-child policy, which is enforced through unhygienic abortions in the absence of birth control. Another issue is acute malnutrition, which ails around 24.5 to 26.5% of Rohingya children in the Rakhine state. This is a major cause of wasting, a condition that is characterized by excessive weight loss leading to weakness, fatigue, and muscle "wasting," which affects over 20% of these children. Anoth-

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er prominent health threat is natural disasters: landslides, floods, and cyclones facilitate the spread of disease and destroy the fragile infrastructure of many camps.[2]

Though humanitarian groups are currently allowed into Myanmar — with very stringent restrictions — the government of Myanmar has previously used aid as a cruel knife against the Rohingya, giving and taking aid as they saw fit.

Moreover, restrictions on humanitarian aid is a major issue. One government report stated that there is one physician for every 158,000 people in Rohingya-concentrated parts of Myanmar, as compared to 681 people in other parts of the state. Therefore, groups such as Doctors Without Borders and the World Health Organization (WHO) vaccinate, treat, and feed Rohingya people.[1] However, in 2014, Doctors Without Borders had to leave the Rakhine State for, in the words of the government, preferential treatment towards the Rohingya. Though humanitarian groups are currently allowed into Myanmar — with very stringent restrictions — the government of Myanmar has previously used aid as a cruel knife against the Rohingya, giving and taking aid as they saw fit.

Though humanitarian groups have persevered by helping the Rohingya people and documenting the harshness of their treatment, a closer look should be taken into a charge of genocide.[1] According to Article II of the 1948 Genocide Convention, "genocide means any of the following acts committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group." For instance, "imposing measures intended to prevent births within the group" and "deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part" are examples of acts considered "genocide." These actions are clearly evidenced by the abysmal conditions in IDP camps, particularly regarding the treatment of pregnant women.[4]

Treating the Rohingya health crisis as a genocide would give way to legal consequences for the government of Myanmar as well as more vital aid for the Rohingya people.

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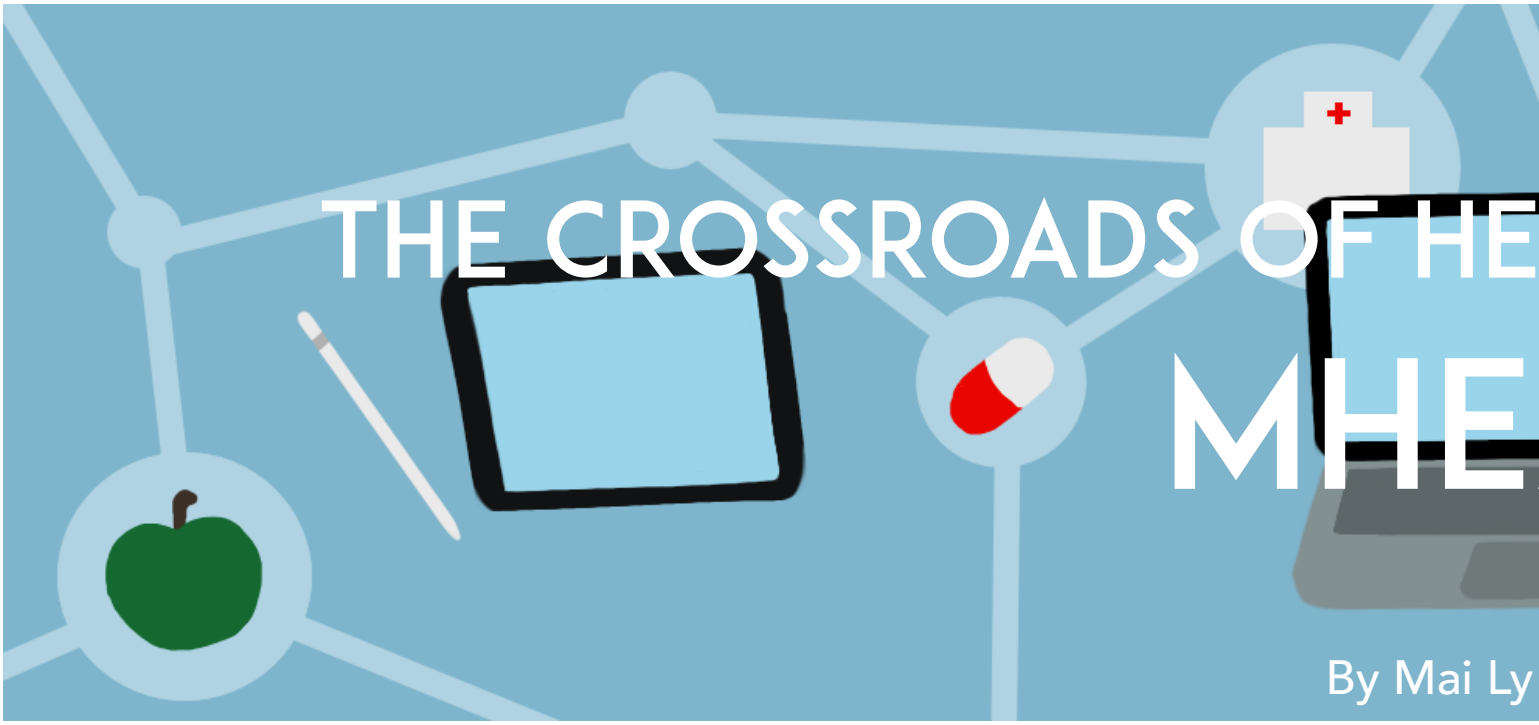


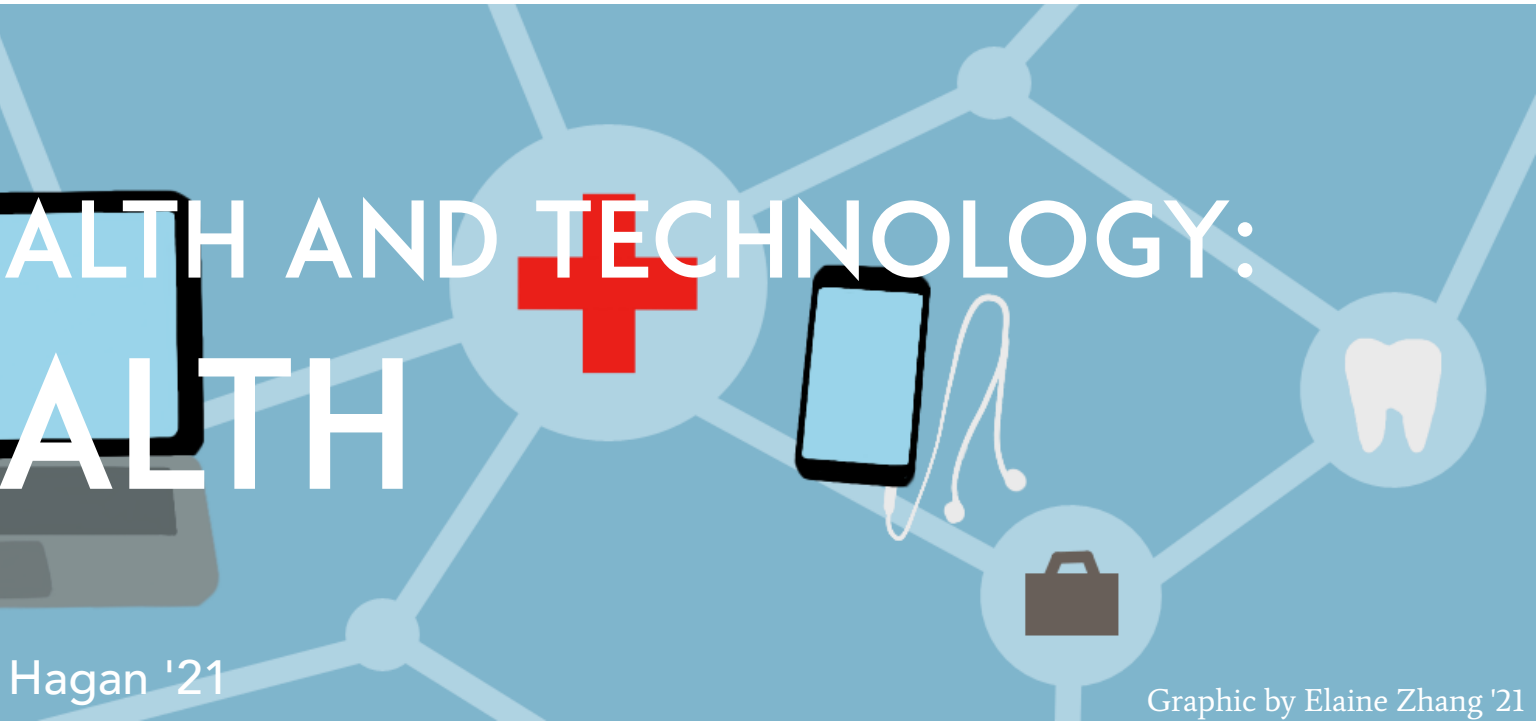
THE CROSSROADS OF HE MHE

By Mai Ly

If you use a Fitbit, Apple Watch, or used an online app to learn more about personal health, you have interacted with mHealth. Simply put, mHealth is an abbreviation for "mobile health." It is used to describe the use of wireless mobile devices to monitor and improve health. The U.S. Food and Drug Administration (FDA) estimates the number of people using mHealth-related software to be around one billion.[1] In addition, a study by Mobiquity Inc. revealed that 70% of the individuals they surveyed used a health app.[2] The survey also reported that the most common reasons for people using health apps were to track calorie intake, monitor weight, and track exercise. Many individuals are becoming more conscious of their physical health and utilize mHealth in order to monitor and set goals. Despite this apparent wealth of users, there is a disconnect between doctors and patients. Of those who used health apps, only 40% shared their findings with a doctor.[2]

mHealth is fast, versatile, and can be utilized for communication, remote monitoring of data, and emergency response systems. It has made working in hospitals easier by allowing for earlier intervention and decreased admission. Researchers at the University of Pennsylvania launched a study to monitor the daily habits and health of patients with chronic kidney disease by equipping their patients with wearable technology that monitored their vital signs.[3] This is far from being the only study utilizing mHealth, however. In fact, Atrium Medical Center (AMC) in Middletown, Ohio used mHealth to improve hospital communication. In conjunction with the local fire department and Miami University Oxford, AMC launched a program called "Mobile Integrated Health" which works by monitoring those individuals who most frequently

By teaching patients how to monitor themselves and giving them the technology to do so, the study aimed to identify those with elevated risk for chronic kidney disease and create personalised treatments.



Graphic by Elaine Zhang '21

call 911. The program schedules visits for healthcare professionals to the homes of at-risk individuals as well as performing check-ins over the phone.[4] Mobile Integrated Health is intended to be a proactive measure aimed at reducing the cost of emergency visits by preventing the need for these visits in the first place.

Many institutions outside of hospitals are looking to embed mHealth in our day-to-day lives. Duke University recently launched their new health initiative meant to improve student life by teaching students to monitor sleep and activity with smartwatches.[5] Whether the constant monitoring of vitals will be helpful or hurtful to students who are already obsessing over grades is yet to be determined. In addition to monitoring personal health, mHealth impacts how people recieve treatment. As of November 2018, reSET (an app focused on rehabilitation for drug addicts) is available via prescription. The app offers a 12-week treatment plan with features meant to provide cognitive behavioral therapy and fluency training to patients with substance abuse disorder.[5] Approved by the FDA last September, it is hoped that reSET will deliver a targeted blow to the opioid epidemic.

In the future, users of mHealth can expect to see the gap between patient and doctor begin to narrow as the technology continues to improve. Although questions about patient privacy and the extent to which technology will play in our lives are yet to be conclusively answered, mHealth is here and already impacting the healthcare industry.

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MENTAL HEALTH AND SOCIAL MEDIA: AT ODDS OR AT ONE?

By Julian Schirnding-Yach '21
and Aarthi Katakam '21

Discussions about the impact of social media are becoming increasingly common, mainly due to concern about its negative effects on mental health. Recently, groups such as the U.S. Congress and the World Health Organization (WHO) have conducted research on this claim through platforms including Facebook, Twitter, and Instagram. As a result, the scientific community has concluded that there are many adverse effects of social media on mental health.

Some of these impacts include depression and lowered self-esteem.[1] This is due to a defining aspect of social media platforms: their emphasis on the "highlight reel" of people's lives and the omission of their everyday struggles. Happy stories filled with smiling faces often dominate social media feeds, not boring days at work or school. According to a survey conducted by Clarissa Silva, a behavioral scientist, researcher, and a member of Harvard Medical School's Institute of Coaching, 60% of social media users report that social media has negatively impacted their self-esteem.[2] But how can we be sure that social media use is the actual cause of depression and lowered self-esteem? A recent study from researchers at the University of Pennsylvania has addressed this concern, establishing a causal link between increased social media use and feelings of loneliness or depression. In the study, 143 undergraduates were randomly assigned to two groups: one with limited social media usage defined as ten minutes on each platform per day, and the other with normal usage. As a result, the group with reduced social media time experienced having, on average, less lonely or depressed feelings.[3]

Cyber bullying is another concerning issue, as is the use of social media in spreading hate speech and encouraging anti-social behavior. Bullying is known to have catastrophic effects on one's well-being, leading to increased depression or anxiety. The anonymity of social media provides bullies with a digital cover, allowing them to say anything they want with virtually no consequences. Another unique aspect of social media is the ease with which personal materials or information can be made public. Spreading nude photos, encouraging self-harm, and exposing personal information are all examples of cyber bullying that can have devastating short-term and long-term effects, and are done effortlessly through the use of social media.[4]

People with similar interests — whether it be tennis, chess, politics, nature, or history — can share their passions and expertise across countries and time zones blind to people's cultural, racial, and gender differences.

While these are all valid concerns about how social media can negatively impact mental health, there are also some benefits of social media to personal well-being. One positive impact of social media is that it can help form connections between people who would otherwise not be able to meet. Family members and friends from all around the globe can stay in contact with each other through new social media platforms like Whatsapp and Viber. Before these apps and the establishment of the internet, communicating with people from other countries was almost impossible.[5] People with similar interests — whether it be tennis, chess, politics, nature, or history — can share their passions and expertise across countries and time zones blind to people's cultural, racial, and gender differences. Social media builds new connections.

In conclusion, social media can have negative impacts on mental health, such as depression, anxiety, or lowered self-esteem, through its exclusive display of the "highlight reel" of people's lives, and the ease with which it can be abused for cyberbullying. These effects are particularly concerning because of the rise of social media use among teenagers. However, there are undeniable positives of social media, such as how it can promote lasting connections between loved ones, or create new connections between people online in far away places.

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THE FUTURE OF INVASIVE SURGERY

By Sydney Rastkhane '20

The da Vinci Surgical System is a robot-assisted surgical system. It consists of a surgeon's console, four robotic arms with a patient side module, and a vision system.[1] The design of the console enables the surgeon to be seated comfortably while operating the robot. The laparoscope, a thin tube with an attached camera and light, is used to look inside the body. The images are instantly displayed on a three-dimensional monitor, where they can be magnified up to ten times. Currently, the da Vinci system is used for cardiac, colorectal, urologic, thoracic, and general surgery.[3]

The da Vinci Surgical System has contributed significantly to the surgical world. Its biggest benefit is its less invasive nature, reducing trauma to the body. Less trauma means less bleeding and infection, a lower chance of nerve damage, smaller scars, and a faster recovery time.[4] Additionally, robotic arms can reach areas of the body that would otherwise be difficult to access. The arms can rotate with more mobility and with greater precision than the human hand.

However, the da Vinci Surgical System also has several disadvantages. Its cost is the primary problem: one robot costs approximately two million dollars excluding any maintenance costs. To operate the machine, surgeons are required to have proper training, adding to the already-high expenses. In addition, the machine has some risk of failure during operation, which can raise ethical concerns.[5]

The da Vinci Surgical System is a robot-assisted surgical system.

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