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CHOATE PUBLIC HEALTH

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ARE SHEET MASKS REALLY EFFECTIVE?

By Nico Decker '20

With a rise in the popularity of Korean skincare products, particularly sheet masks, many will wonder: Do these serum-soaked masks actually work?

They are fun to use, look a little bit strange, but certainly make one feel like a princess (or a wet-faced fool). However, some question whether their skin is actually absorbing the numerous ingredients in the mask.

The "skin absorbs mask ingredients, but only a small portion of the active ingredients," certified dermatologist Dr. Dhaval G. Bhanusali explained to Bustle. "The skin's outer layer does a great job [providing protection] from the environment. This is also why it is hard to get products to penetrate easily into the deeper layers."[1] Usually, only the first few listed ingredients will make any difference.

However, sheet masks still moisturize the skin with the added benefit of being a relaxing pastime. While there is no evidence to prove that they are more effective than other skincare treatments, the entire experience makes it worthwhile.[2]

Sources

1. Komar, Marlen. "4 Dermatologists On Whether Or Not Face Masks Actually Work." Bustle. March 20, 2018.

2. Miller, Jenni. "Are Korean Sheet Masks Skin Saviors or a Waste of Money?" New York Post. June 23, 2016.

IS ADDICTION A DISEASE?

By Vidhya Pathy '20

The National Center for Health Statistics (NCHS) reported that drug-related deaths in children aged 15-19 was relatively high in 2015, with 772 lives lost throughout America. That same year, 33,000 Americans across all races, genders, and ages succumbed to opioid overdoses according to the National Institute of Drug Abuse (NIDA).[1] Drug use and addiction has riddled the entirety of America. While underage drinking rates have gone down, the illegal usage of marijuana has more than doubled in the past decade.[2] The United States and the world at large are facing a crisis with the use of illicit drugs. Out of this crisis, many dilemmas have surfaced. Is addiction really a disease?

There are four main classifications of drugs: stimulants, depressants, hallucinogens, and steroids. They each facilitate varying types of dependency and affect the brain slightly differently. Crack cocaine is a stimulant that takes control over the dopamine transporters' ability to reabsorb initially released natural dopamine. With the possibility of absorption temporarily halted, dopamine bounces between neurons in the brain, creating a euphoric effect for ten minutes. The aftereffect is the user left feeling close to death.[3] Depressants like alcohol suppress a type of neurotransmitter called glutamate (causes excitation) while continuing the flow of GABA (gamma-aminobutyric acid), which under normal circumstances, allows delineation of thought. The lack of glutamate causes only the strongest of excitation signals

to be let through the neural pathway, creating a loss of perception without the knowledge that perception is being lost.[4] Psilocybin, the active ingredient in hallucinogenic mushrooms, enters the brain, mutates into psilocin, and triggers the release of serotonin. The sheer amount of chemicals being released in the brain causes it to perceive stimulation that is not present, resulting in hallucinations. Steroids trigger a different kind of dependence, stemming more from body image than anything else.

One perspective on addiction is that it comes down to lack of will and personal failure. Jeffrey A. Schaler, PhD, wrote in the Psychiatric Times that there is no empirical proof that addiction is a disease or a disorder; instead, he claimed that addiction is a behavior. He noted that an alcoholic will not drink all the alcohol in the bar in one given night; alternatively, he will plan out the next time he needs a drink based on the situation. In other words, a heroin-addicted mouse will not drink the heroin water 24/7; it will drink the water at its own discretion, even if it had complete access. This behavioral process confirms that it is a specific behavior that the user becomes addicted to repeating. Another perspective comes from Aberman and Salamone, researchers at the University of Connecticut. They concluded that dopamine release is the expectation of a reward, rather than the reward itself. This evidence points to the fact that there is not necessarily a psychological connection between a given substance and the need for it. In essence, correlation is not causation.[5]

The American Medical Association (AMA) and the National Center on Addiction and Substance Abuse (NACA), however, have taken a different stance. The NACA contradicted Dr. Schaler by pointing out that heart disease is not a choice even though it is brought upon by oneself with a series of unwise lifestyle choices. On a similar note, chronic disease is defined as a long term condition that can be controlled, but not cured. The NIDA claimed that addiction is a chronic disease because relapses are common, and the desire for a given substance can be controlled but never quelled after an unhealthy relationship with it. Alan I. Leishner, a researcher at University of Texas at Dallas, published a paper corroborating this very idea. He wrote in Issues in Science and Technology, "Although some addicts do gain full control over their drug use after a single treatment episode, many have relapses. Repeated treatments become necessary to increase the intervals between and decrease the intensity of relapses." Disease or not, the fearsome truth remains — addiction is deadly.

Sources

1. Curtin, Sally C., Margret Warner, and Betzaida Tejada-Vera. Drug Overdose Deaths among Adolescents Aged 15-19 in the United States:1999-2015. Unpublished raw data, August 2017.

2. Basu, Tanya. "Marijuana Use in America Has Doubled in the Past Decade." Time. October 22, 2015.

3. ———. "Your Brain on Crack Cocaine." Your Brain on Drugs. Podcast video. November 20, 2013

4. Moffit, Mitchell, and Gregory Brown. "Your Brain on Alcohol." Your Brain on Drugs. Podcast video. November 21, 2012.

5. Schaler, Jeffery A. "Addiction Is a Disease." The Psychiatric Times 19, no. 10 (October 1, 2002): 1-3.

By Wilson Wang '19

TAMPONS: NO NEED FOR FEAR

Females experience menstruation from puberty until menopause, during which they lose around ten to 35 mL of blood.[1,2] The use of hygienic products such as tampons, pads, or diva cups are used to protect from infection and mess. Tampons, invented by Dr. Earle Haas in 1929, are a useful and simple solution to the effects of menstruation.[3]

There are various advantages to using tampons, the first being their comfort. Unlike pads, tampons are inserted into the vagina and work by absorbing all of the menstrual blood while contained within the vagina, which reduces the chances of blood leaking onto the underwear. Thus, tampons can help women avoid the damp and sticky feeling of blood present on their underwear or pad.

The second advantage is that women are free to move and participate in various athletic activities as tampons do not require adjusting, unlike pads. With swimming in particular, tampons serve to protect the wearer from leakage of any blood into the water.

Some may think pads are more comfortable than tampons because tampons are inserted into the vagina. However, the inner part of the vagina does not have sensory nerves, which makes the insertion and positioning of the tampon easy and comfortable.[4] Tampons are also smaller and easier to carry around, making them more convenient and allowing them to be changed when necessary.

Common points of question around tampons include the Toxic Shock Syndrome (TSS) and fear of breaking the hymen (a membrane partially closing the opening of the vagina). TSS is a relatively uncommon life-threatening infection caused by bacteria and the infrequent changing of tampons. In order to contract TSS, one must be carrying the Staphylococcus aureus (staph) bacteria or group A streptococcus (strep) bacteria, not have changed their tampon for more than eight hours, and have a wound in the vagina. The chances of experiencing TSS are significantly reduced when tampons are used in the correct size and changed every four to eight hours.[5,6]

Barbara Poncelet of Verywell Family, an organization dedicated to providing articles reviewed by board-certified physicians on sexual health, family planning, and parenting, wrote that, "When it comes to teens and the use of tampons, there are many questions and misconceptions. Parents and teens have the same questions and often wonder whether tampons can be used during virginity."[7] Females who have never experienced sexual intercourse may be hesitant to use tampons because, if improperly inserted, they may "break" the hymen. The intact hymen, in many cultures, is seen as a representation of purity and virginity even though, contrary to popular belief, the act of penetrative sex does not "break" your hymen. It may tear it, but hymens may be torn in a variety of ways, such as through activities like

horseback or bike riding, none of which are indicative of the state of virginity.[8] This tearing can be alleviated by choosing the correct size tampon to be used during a period.

It is important that those who menstruate choose the hygienic products that serve them and their needs the best in addition to being aware of any potential risks or benefits posed by their use. In the end, it comes down to the comfort and safety of the person in question. If that person finds those qualities are fulfilled by choosing tampons, then there is no reason to refrain from their use.

Sources

1. NHS Choices. "Heavy Periods." NHS Choices. Last modified September 30, 2016.

2. Prior, Jerilynn C. "Very Heavy Menstrual Flow." CEMCOR. Last modified October 4, 2017.

3. Bellis, Mary. "A Brief History of the Tampon." Thought Co. Last modified December 30, 2017.

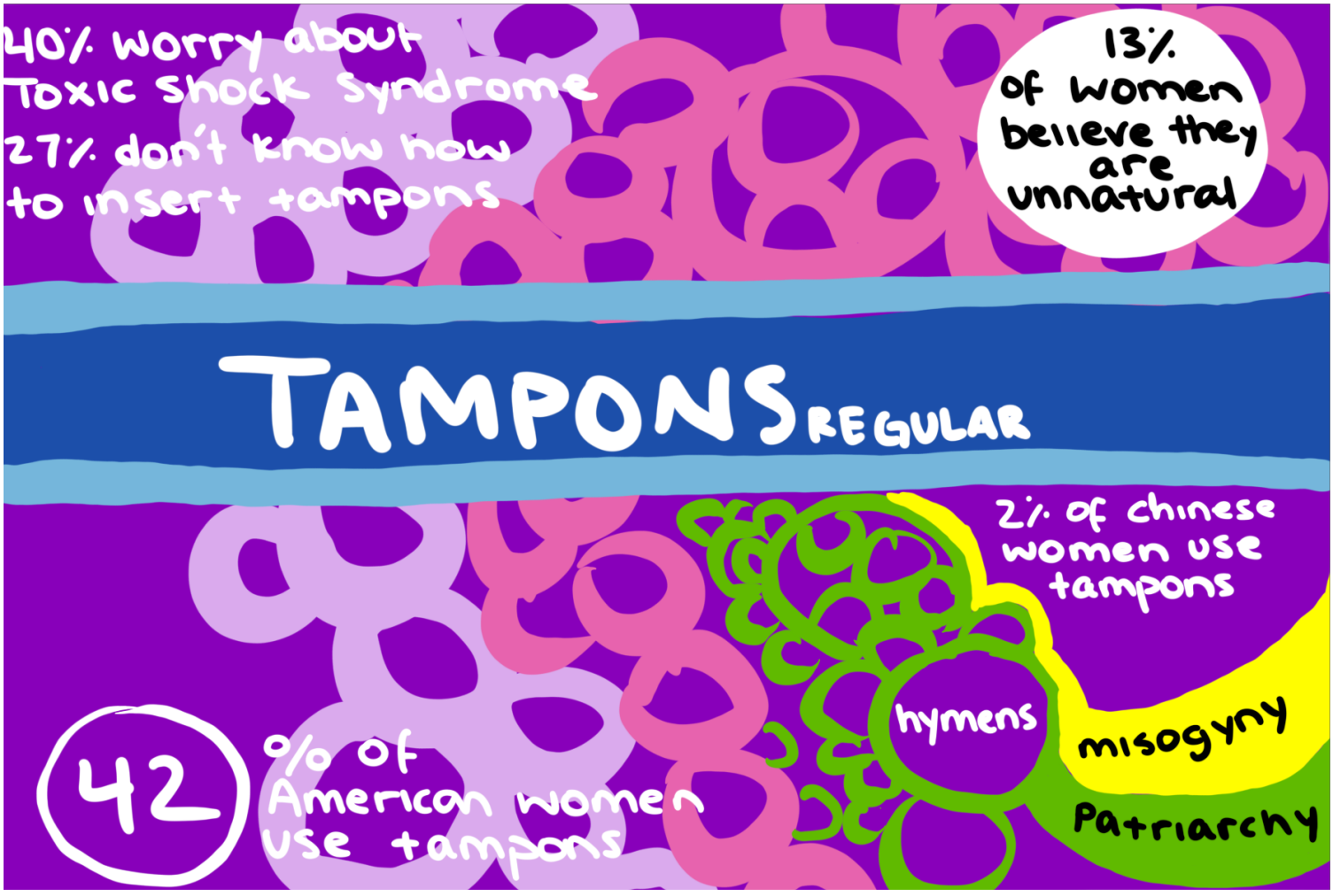
4. Komisaruk, Barry R., Nan Wise, Eleni Frangos, Wen Ching Liu, Kachina Allen, and Stuart Brody. 2011. "Women's Clitoris, Vagina, And Cervix Mapped On The Sensory Cortex: Fmri Evidence". The Journal Of Sexual Medicine 8 (10): 2822-2830. doi:10.1111/j.1743-6109.2011.02388.x.

5. Mayo Clinic. "Toxic Shock Syndrome." Mayo Clinic. Last modified May 4, 2017.

6. Tracy, Brianne. "What Toxic Shock Syndrome Survivor Lauren Wasser Wants Women to Know about Tampon Safety." People Health. Last modified March 15, 2018.

7. Barbara Poncelet, "Will My Teen Still Be a Virgin If She Uses a Tampon?," verywell family, last modified April 13, 2018,

8. Christine Cupaiuolo, "The Hymen: Breaking the Myths," Our Bodies Ourselves. Last modified December 31, 2008.



JUUL: FRIEND OR FOE?

By Laryssa Gazda '20

Electronic cigarettes have become increasingly popular in the last couple of years, and devices such as JUUL pens have developed into a new trend prominent on social media and in many people's daily lives. Small and discreet, these devices can simply be plugged into a laptop to charge. They seem harmless, but are they really? To date, little is known about the health effects of these electronic cigarettes, but devices like the JUUL pen are marketed as a means by which smokers can "safely" stop smoking cigarettes. Recreational use of these devices, however, has dramatically increased in popularity, raising many concerns.

When a user lights a cigarette, he or she is inhaling not only the highly addictive chemical nicotine, but also other dangerous chemicals such as formaldehyde, lead, arsenic, ammonia, carbon monoxide, and even radioactive elements like uranium.[2] The majority of chemicals found in cigarettes are carcinogenic (cause cancer); other chemicals have been found to cause heart disease and lung disease. With these facts in mind, it is no doubt that many smokers want to quit and why JUUL pens may seem like a safer alternative.

JUUL pens work by heating

a liquid (made up of glycerol, propylene glycol, flavoring, nicotine, and benzoic acid) and producing an aerosol that users inhale into their lungs. These liquids come in a variety of flavors like mint and mango, making them more attractive to younger audiences. JUUL devices also contain large amounts of nicotine: JUUL Labs reports that a single "JUULpod" contains 0.7 mL of fluid with 5% nicotine which is the equivalent to smoking one pack of cigarettes.[5]

Because nicotine is both a sedative and a stimulant, the user experiences a "kick," or a rush of adrenaline, as the adrenal glands are stimulated.[3] This rush allows the user to become less tired, and possibly less anxious. Nicotine also increases the production of feel-good neurotransmitters like dopamine and serotonin, and even enhances memory and learning by increasing the production of the brain chemical acetylcholine.[1]

These may all seem like harmless, even desirable, side effects. Then what is the catch? Nicotine's highly addictive quality, comparable to heroin and cocaine, can cause withdrawal symptoms such as anxiety, depression, irritability, and inability to focus.[3] The body also builds up a tolerance for nicotine as time goes on, so less and less dopamine is released. This lack of dopamine can contribute to an increased risk of depression and anxiety.

Additionally, research shows that the use of JUUL pens is more dangerous for teens than adults. Nicotine exposure poses a much higher risk for adolescents. Exposure during adolescence increases the risk of developing psychiatric disorders and impairing cognitive function later in life. Exposure during teen years has been found to cause attention deficits that worsen as time goes on.[4]

As of now, scientists say that JUUL pens and other electronic cigarettes are safer than traditional cigarettes. However, this does not mean that JUUL pens themselves are safe. While some seek short-term benefits such as relaxation and focus, the risk of addiction and withdrawal symptoms as well as impaired cognitive function in the long run associated with the high levels of nicotine in JUUL pens outweigh the instant gratification. Not to mention, it is unknown how other main ingredients such as propylene glycol affect the lungs and other parts of the body. Since much information about these devices remains up in the air, it is better to steer clear than to face the consequences later in life.

Sources

1. Alban, Deane. "Nicotine: An Unlikely Brain-Enhancing Drug." Be Brain Fit.

2. American Cancer Society. "Harmful Chemicals in Tobacco Products." American Cancer Society.

3. Felman, Adam. "Everything you need to know about nicotine." Medical News Today. MediLexicon, Intl., 11 Jan. 2018.

4. Goriounova, Natalia A., and Huibert D. Mansvelder. "Short- and Long-Term Consequences of Nicotine Exposure during Adolescence for Prefrontal Cortex Neuronal Network Function." Cold Spring Harbor perspectives in medicine 2.12 (2012): 10.1101/cshperspect.a012120 a012120. PMC. Web. 22 Mar. 2018.

5. JUUL Labs. "FAQs." Juul.

TEENAGE ANXIETY:
A NATIONWIDE EPIDEMIC

By Peter Di Natale '21

The symptoms of anxiety can include emotional, social, and physical changes such as irritability, difficulty concentrating, avoiding social interactions, isolation from peer group, unexplained aches and pains, as well as excessive fatigue.[1] According to the National Institute of Mental Health, anxiety is the most common mental illness in the United States, affecting nearly 40 million teens nationwide.[2] This begs the question: Why are so many teens suffering from anxiety disorders and what can be done to help?

Suniya Luthar, a professor of psychology at Arizona State University, stated in an article for the New York Times that the teens most likely to suffer from anxiety are those who try hardest in school. Luthar explained, "There's always one more activity, one more AP class, one more thing to do in order to get into a top college. Kids have a sense that they're not measuring up. The pressure is relentless and getting worse."[3]

Teens take more classes or activities than they are able to handle, which inevitably leads to some form of failure, lowering the adolescent's self esteem and increasing the risk of anxiety. In addition to a student's own motivations, parental pressure often plays a significant role in causing anxiety in teens. Parents may push students to take on more responsibilities than the student is capable of, resulting in the overextension of a student's abilities which can lead to significant amounts of stress. In extreme cases, teens' anxieties can be exac-

erbated by abuse received in the home.

How can teens with anxiety work to treat their disorder? There are a few steps that can be taken which have been proven to alleviate anxiety. The first step is sleep. Getting the proper amount of sleep (at least eight hours) and doing so regularly has been shown to improve mood and relieve stress.[4] In addition to sleep, eating well-balanced and healthy meals at regular times throughout the day, making time to exercise or participate in some sort of physical activity, and learning to manage time can serve to reduce stress. Finally, utilizing a trusted adult or friend to help distinguish limits and boundaries around work can also help to manage anxiety.[5]

The stigma around mental illness is a difficult one to avoid, but that should not prevent students from getting the help that they need in order to live lives unadulterated by the effects of anxiety. If a teen feels that he or she is experiencing an inordinate amount of stress or pressure, the most important step is to reach out and speak to a healthcare professional, like those present in the Choate health center. Left untreated, anxiety can permanently impact a student's academic record as well as lead to a litany of other mental disorders such as depression or substance abuse.[6] Untreated anxiety can also bleed into relationships between romantic partners, friends, and family; relationships may become very difficult or taxing to maintain, which will put them under strain.[7] Asking for help is often one of the most difficult things to do, but it is also one of the most important.

Sources

1. Katie Hurley, "6 Hidden Signs of Teen Anxiety," Psycom, last modified February 13, 2018.

2. Waugh, Benjamin. "Physical Abuse." National Society for the Prevention of Cruelty to Children. Last modified December 10, 2017.

3. Luthar, Suniya. "Effects of Anxiety on Teens." Department of Psycology at Arizona State University. Last modified March 7, 2018.

4. Amie M. Gordon, "Up All Night: The Effects of Sleep Loss on Mood," Psychology Today, last modified August 15, 2013.

5. DuPont, Robert. "Coping Strategies for Anxiety." Anxiety and Depression Association of America. Last modified March 2017.

6. Eileen Bailey, "What Happens When Anxiety Goes Untreated," Health Central, last modified July 5, 2008.

7. Kristine Tye, "How Anxiety Destroys Relationships (and How to Stop It)," Good Therapy, last modified June 22, 2015.

POLIO
IN THE MODERN WORLD

By Knute Broady '19

Polio is a disease many may have heard of, but few know very much about. This is mainly because polio has been completely eradicated in most of the civilized world. However, polio is still considered to be one of the world's most dangerous diseases.[1] Polio, short for poliomyelitis, is a virus that lives in the throat and intestines. It spreads primarily through feces, but in some cases, it can be transmitted by water droplets coming from the mouth. Polio is extremely infectious, especially in underdeveloped and war-torn areas where people are more likely to come into contact with raw sewage.

There are various forms of the poliomyelitis virus, and each impacts the human body differently. The two main forms are spinal polio and bulbar polio. Spinal polio is the most commonly found form of polio — it invades motor neurons responsible for voluntary muscle movement in the limbs and torso. Bulbar polio develops when the bulbar region on the brain stem is infiltrated by the virus, resulting in issues with motor functions such as breathing, speaking, chewing and swallowing.[6]

Most infected individuals develop no symptoms at all. Some develop symptoms similar to the flu, which are alleviated in a few days. However, polio is most notorious for the symptoms that do not go away, namely permanent paralysis. If respiratory muscles are affected, the patient may die.[2] Some polio survivors are confined to the dreaded Iron Lung, a large medical device that uses vacuum pressure to artificially aid the patient in breathing.[4] An important figure affected by polio was President Franklin D. Roos-

evelt, who contracted polio as a child and was left with crippling paralysis in his legs for the rest of his life.

In 1953, Jonas Salk announced the discovery of an effective polio vaccine.[4] It was based on the injection of dead virus strains that increased antibody response, which would increase immunity. Later, a cheaper vaccine was developed based on live forms of the virus, which can be administered orally. This method is now more common.[2, 5] The development of the polio vaccine is a much hailed achievement in modern medicine.

However, even after the polio vaccine was developed, the disease continued to be a huge problem. During an outbreak in the 1980s, over 350,000 people were paralyzed each year due to polio. In 2013, fortunately, that number decreased to only 407 cases per year globally.[3] The near eradication of the virus is a beaming success story of widespread vaccination being effective in combating disease.

Unfortunately, polio was not eliminated completely, as it still exists in Pakistan, Nigeria, Afghanistan, and Cameroon as of 2014 and recently has spread to countries where it has not previously existed.[3] These countries are especially vulnerable because they are ruled by unstable governments that are unable to provide sufficient vaccination for their populations, which tremendously increases the risk of an epidemic.

This is an important lesson for all nations, even for developed countries. For example, in the United States, an increased movement against vaccination has caused a rise in diseases that were considered nearly non-existent a decade ago. As one of the most contagious diseases in human history, polio cannot be forgotten.

Sources

1. "Global Public Health Threats 7. Why Polio is still a threat." Greenfacts.

2. U.S. Government. "What is Polio?" Center for Disease Control. Last modified July 25, 2017.

3. Gholipour, Bahar. "Why the World Still Faces a Threat from Polio." Live Science.

4. History.com Staff. "Salk announces polio vaccine." History.com. Last modified 2010.

5. "Salk announces polio vaccine." PBS.

6. "Famous People Who Had and Have Polio." Disabled World. November 16, 2017.

THE FIGHT FOR IMMUNIZATION IN ETHIOPIA

By Esther An '21

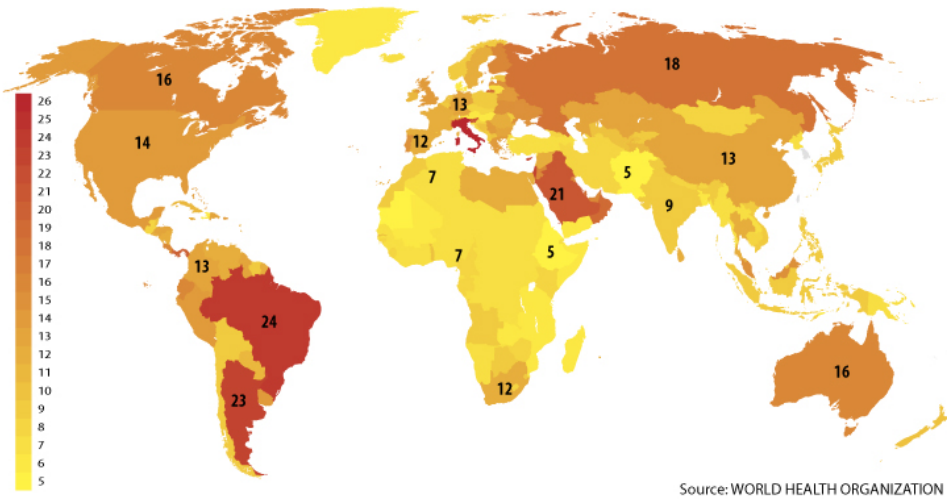
The issue of childhood immunization in third-world countries — in other words, vaccination availability, or lack thereof — has led to suffering and deaths of many children. This is a recurring problem in third-world countries, namely Ethiopia.[1] Although there has been global progress in reducing the child mortality rate, discrepancies still exist. Sub-Saharan Africa still remains the area with the highest mortality rate of children under the age of five due to a lack of vaccine availability, with one in every 13 children dying before turning five.[2]

The first major efforts for immunization in Ethiopia go back to 1980, with the creation of the Expanded Program on Immunization (EPI). This program was started with the intention of reaching 100% immunization coverage in Ethiopia by 1990.[3] Six vaccine-preventable diseases (VPDs) were included in the program: tuberculosis, measles, diphtheria, pertussis, tetanus, and polio. The goal, however, was not met. In 2000, 9.9 million children around the world under the age of five died from VPDs.[4] Still, the EPI's efforts were recognized, and by 2013, the number of global deaths of children under five was reduced to 6.3 million.

Despite the EPI's promises, the full immunization rate only reached 24.5% The problems with the initial program led to the publishing of a comprehensive multi-year plan known as the Ethiopia National Expanded Program on Immunization.[6] Numerous studies were conducted in consecutive years in an attempt to pinpoint the factors that had hindered nation-wide immunization. In 2016, a case-control study was conducted in southern Ethiopia. The study consisted of a

(VACCI) NATIONS OF THE WORLD

The WHO's database of vaccine requirements covers 193 countries. It does not have any information on enforcement or actual vaccination rates. Below, the map is colored according to the number of distinct vaccine antigens required, at least in part, by each country. The per-country average is a little over 10.



Source: WORLD HEALTH ORGANIZATION

Source: UNICEF

sample size of 548 randomly selected children aged 12 to 23 months. The crucial discovery was the realization that most of the children in the study who received incomplete vaccination treatments were those who had young mothers or mothers with negative perceptions of vaccine side effects. In 2018, another case-control study in east-central Ethiopia came to similar conclusions.[7] It was noted that the greatest number of incomplete vaccinations were among the children of mothers who had not received prenatal and postnatal services, indicating that the educational piece of these services was vital to mothers for understanding the benefits of vaccinations.

Such research presents a way for the global community to direct its resources; the studies suggest that the District Health Office needs to focus its resources on strategies that will promote the awareness of mothers. Vaccines could reach more people if healthcare providers motivated mothers to attend health services during pregnancies, which would not only get them medical aid, but also help to fight the stigma of immunizations.

What does this mean in the bigger picture? The prevention of child deaths through immunization is one of the most widely applied and cost-effective public health interventions. It is important because VPDs can and will affect everyone. This discovery about Ethiopia's child mortality crisis presents valuable information for the rest of the global community as the search for more accessible worldwide immunization continues. Hopefully, a more effective allocation of resources to fight VPDs in Ethiopia will save lives in the years to come.

Sources

1. "Should Any Vaccines Be Required for Children?" ProCon.org.

2. "Children: Reducing Mortality." World Health Organization. Last modified October 2017.

3. "Expanded Program on Immunization." World Health Organization. Last modified November 8, 2004.

4. Liu, Li, Shefali Oza, Daniel Hogan, Jamie Perin, Igor Rudan, Joy E. Lawn, Simon Cousens, Colin Mathers, and Robert E. Black. "Global, Regional, and National Causes of Child Mortality in 2000–13, with Projections to Inform Post-2015 Priorities: An Updated Systematic Analysis." The Lancet, September 30, 2014.

5. Negussie, Abel, Wondewosen Kassahun, Sahilu Assegid, and Ada K. Hagan. "Factors Associated with Incomplete Childhood Immunization in Arbegona District, Southern Ethiopia: A Case – Control Study." BMC Public Health, January 12, 2016.

6. Federal Ministry of Health, Addis Ababa. "Ethiopia National Expanded Program on Immunization." National Planning Cycles. Last modified April 2015.

7. Yenit, Melaku Kindie, Yalemzewood Assefa Gelaw, and Atsede Mazengia Shiferaw. "Mothers' Health Service Utilization and Attitude Were the Main Predictors of Incomplete Childhood Vaccination in East-Central Ethiopia: A Case-Control Study." Belgian Public Health Association, February 26, 2018.

WHEN THE END IS NEAR

By Heidi Lei '20

Death is not a common topic of conversation at Choate, or even most places, but it is something that will eventually affect everyone at some point in his or her life. Even though terminal illnesses (such as cancer) might sound far away and foreign to Choate students, the elderly are not the exclusive targets of those deadly diseases.

It should not come as a surprise that people rarely think about or plan for how they want to be cared for before death. The current perspective on disease seems to be that there is no such thing as "truly incurable" and that there is always something doctors can do to increase the odds of survival. That may mean undergoing some kind of surgery, enduring another round of radiotherapy, or taking drugs that are still being researched; people see diseases as enemies and battles to be fought. Hospice, however, tries to provide a new perspective to terminally ill patients and their families.

Unlike traditional medical treatments which aim to extend a patient's life expectancy, sometimes at the cost of lowering life quality, the objective of hospice is to empower patients whose illnesses are not likely to be cured in the time they have remaining. A hospice team traditionally consists of a hospice nurse, who regularly visits the patient's home, demonstrates how to deal with emergencies, and explains how to apply medications; a nurse on duty, who can be reached through the phone to answer questions and evaluate situations so that the hospice team can immediately get involved when necessary; and a therapeutist, who focuses on the patient's and the family's mental health. It is a common myth that hospice means giving up and waiting to die, when in reality, hospice care provides comfort and dignity at one's last stages of life.[1]

Studies have shown that hospice does not have a significant impact on life expectancy. However, for certain diseases, patients who received hospice lived longer than expected. Hospice has a consistently high satisfaction rate from patients and their families.[2] It often serves as a chance for the family members of a patient to see their loved one no longer in constant pain or discomfort.

Although hospice care is proven to have numerous benefits for patients, for whom further intensive medical treatments generate meager positive response but instead guarantee increased pain and stress, that does not make it any easier of a decision. With the diagnoses of any terminal disease comes the question: When does it end? Many choose to continue to pursue treatment, not because they think that it is the best choice for themselves or their health, but because they consider stopping treatment "giving up." Even if the patient in question feels that it is time to stop and turn to hospice, the

pressure present from loved ones can make that difficult.

Broaching the topic of hospice can be hard when one is actively involved in a loved one's treatment and already overwhelmed. However, there are ways to prepare for that moment; being able to have that discussion early and in an environment in which all parties are cognizant is a primary component of that.

Belonging to a campaign in 1991 in La Crosse, Wisconsin, in which medical leaders pushed for a frank discussion about death and dying, the following questions inquire about any end-of-life wishes patients may have. These questions serve as a roadmap to communicating those wishes clearly and effectively to physicians and any family members that may be involved.

1. Do you want to be resuscitated if your heart stops?
2. Do you want aggressive treatments such as intubation and mechanical ventilation?
3. Do you want antibiotics?
4. Do you want a tube or intravenous feeding if you cannot eat on your own?[3]

No matter how uncomfortable a conversation about death and the moments leading up to it may be, it is an inevitable stage of life that should be prepared for just like any other. Discussing end-of-life wishes, including the possibility of hospice care, will ensure that all parties involved are prepared for when the end comes.

Sources

1. Hospice Foundation of America

2. Gawande, Atul. "Letting Go: What should medicine do when it can't save your life?" The New Yorker. Published August 2, 2010.

3. Hatkoff, Craig, Rabbi Irwin Kula, and Zach Levine. "How To Die In America: Welcome To La Crosse, Wisconsin." Forbes. Last modified September 23, 2014.

THE ACHOO SYNDROME

By Shaye Herman '20

About one in four people suffer from "photic sneeze reflex," more commonly known as sun sneezing. This reflex causes one to sneeze when he or she has adapted to darkness, then is suddenly exposed to light.[1]

Aristotle was one of the first to document sun sneezing. In 350 BCE, he hypothesized that the sun's heat caused sweating inside the nose which triggered a sneeze.[2]

One small variation in one's DNA code — having a C instead of a T at genetic marker rs10427255 — determines if one will be a sun sneezer. This autosomal dominant characteristic, which means that the associated gene can be inherited from just one parent, led to a rather whimsical acronym for the condition: Autosomal-dominant Compelling Helio-Ophthalmic Outburst syndrome, or ACHOO.[2]

While there is no definitive answer as to what causes the photic sneeze reflex, the most prevalent theory is that neurological signals are crossed between the trigeminal nerve, which senses facial sensations like an itch, and the optic nerve, which constricts the eye's pupils when light hits the retina.[2]

As harmless as sun sneezing may be, its research unearthed an important discovery: a genetic link between sun sneezing and light-induced epileptic seizures. Such knowledge could open the door to a greater understanding of the mystery of epilepsy.[1]

Sources

1. Nield, David. "There's a Genetic Reason Why Some People Sneeze in The Sunshine."Science Alert. Last modified May 3, 2017. Accessed March 23, 2018. https://www.sciencealert.com/watch-there-s-a-genetic-reason-why-some-people-sneeze-in-the-sunshine.

2. Griffin, Julia. "Why Looking at the Sun Can Make You Sneeze." PBS NEWS HOUR. Last modified March 20, 2017. Accessed March 22, 2018. https://www.pbs.org/newshour/science/does-the-sun-make-you-sneeze.

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