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## Radioactive

Volume 3. Issue no. 1. February, 2016

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## HOW THE 3D-PRINTER SAVED A BABY GIRL

*Basil Karam, Med I*

Last year, a baby girl was born in one of Lebanon’s hospitals with a severe congenital heart defect. Doctors at the hospital declared her case inoperable and the chances for an operation to succeed were tenuous. The baby was transferred to AUBMC where doctors immediately recognized the severity of her case, since both the baby’s small heart and the surgery’s delicate nature were discouraging. How could the surgeons operate on something they could barely see, let alone recognize? Their only option would have been to operate and hope for the best. That would have been the case before the invention of the 3D printing program. (Continued on page 2)

## IT’S RAINING. IT’S POURING. BACTERIA ARE SWARMING.

*Nisrine Kawa, Med III*

What’s more beautiful than winter? Could it be the dropping temperature, the pleasant breeze, and the smell of freshly fallen rain on massive piles of trash? As a winter enthusiast, this year’s excitement about the rainy season has been washed away by worries about the health implications of the waste crisis that has taken Lebanon by storm. (Continued on page 3)

## LETTER FROM THE EDITOR-IN-CHIEF

*Rasha Raslan, Med III*

Three years ago, Radioactive was conceived with the aim of becoming AUBMC’s student platform for creativity, sharing global facts, and exchanging ideas. Today, it has become a portal for medical and graduate students, nurses, physicians, and other healthcare workers to engage in scientific and social crosstalk. This year’s issues will address a vast array of topics ranging from biotechnological advancements and scientific discoveries to social medicine, mental health, student initiatives, and personal reflections. Our team is proud to say that our newsletter is becoming an integral part of this institution and is slowly inching its way into the heart of AUBMC. We look forward to parallel AUBMC’s growth and partake in the improvement of healthcare on a national, regional, and international level.

## OUT LOUD

What other biomedical advancements in 3D printing do you think will be achieved in the future?



“The ultimate goal for 3D printing is bio-printing, where plastic ink will be replaced with our own cells, allowing effective generation of new tissues and organ components.”

*Dr. Issam El-Rassi, MD*



“I can see us someday printing personalized, functional limbs, to help people with amputations which are restricted to plastic prosthetics in most cases.”

*Kelly Merheb, Med I*

## HOW THE 3D-PRINTER SAVED A BABY GIRL

*Basil Karam, Med I*

The 3D printer works just as its name suggests; instead of printing in two dimensions onto a piece of paper, this printer creates solid three-dimensional objects from a digital file. The printer stacks particles of plastic or resin on top of each other. After being restricted to industrial applications for so long, the 3D printer comes in today as a technology that has revolutionized medicine. Since 2013, AUBMC has been collaborating with the Department of Mechanical Engineering at AUB in an effort to use 3D printing technologies to transform the way AUBMC provides care for its patients.

Why would a medical center need a 3D printer? Doctors now have a chance to effectively practice their techniques on an exact replica of the patient's organ before performing the actual surgery. This aids them in making the right decisions before attempting any surgical interventions, thus boosting their chances of success. Dr. Issam El-Rassi, Chief of Pediatric and Congenital Cardiac Surgery at the Children's Heart Center (CHC) at AUBMC said, "It's like going to an exam while having the questions and the answers ready." Additionally, he explained, "It is now much easier to show the patients and their families exactly what is wrong with their hearts, which helps them understand their conditions in an interactive way." The educational value of such applications is enormous as well. Medical and graduate students will also benefit through their exposure to a multitude of cases, each unique in its own way, even long after they had been operated on.

The child that arrived at AUBMC underwent a successful surgery. Doctors proceeded to print a 3D replica of her heart and as such, were able to treat her appropriately. The girl is now leading a healthy life. Indeed, biomedical advancements in medicine are empowering doctors to make better decisions and are revolutionizing the way care is being administered in hospitals. These medical breakthroughs and investments aimed at improving patient care help AUBMC succeed in achieving its mission of commitment to excellence.



# IT'S RAINING. IT'S POURING. BACTERIA ARE SWARMING.

*Nisrine Kawa, Med III*

It may seem that the current garbage crisis is the newest addition to the long list of (Lebanese) political failures, but there is much more to it than meets the eye (and nose). Sadly, living side by side with piles of trash is nothing new to us in Lebanon. Sidon's very own "Rubbish Mountain" for instance, has been around since the 1980's in spite of substantial donations that were allocated to do away with the eyesore by 2012. Clearly, our current problem has been festering for too long.

In fact, the gridlock surrounding the waste management files has been churning for years now. The Naameh landfill, which finally reached its capacity 15 years ago, and the inadequate waste treatment have caused serious environmental and health issues in the area. This year, new contracts with landfill and collection companies were on the political agenda but solutions to the crisis have yet to be decided on. Since then, people have clamored for this issue to be addressed immediately. As we wait for action to be taken, the health implications of the situation have remained an impending threat.

While the heat of the summer months may have contributed to the horrid smell, the onset of the winter season and the possible infectious diseases that may ensue has heightened the fear of specialists. In fact, both Dr. Abdul Rahman Al-Bizri and Dr. Zeina Kanafani, Infectious Disease Specialists at AUBMC, have expressed their concerns about potential waste material infiltration into our water system. If left untreated, the bacterial load harbored by biological waste can replicate at an exponential rate. Superimposed rain allows the diluted garbage to disintegrate into the soil, sewage, water supply and irrigation systems at distant sites. In theory, we would ultimately have to deal with a marked increase in diarrheal diseases, cholera, typhoid and non-infectious illnesses such as respiratory and cutaneous allergies. This is particularly problematic for high-risk populations such as the extremes of age and the immune-compromised, as well as those living in crowded areas with poor sanitation.

As long as the issue remains unresolved, Dr. Kanafani suggests that precautionary measures be taken. She recommends that water from any non-bottled source, including dispensers, be thoroughly boiled before use. In addition, she noted that obligatory preemptive typhoid vaccination ought to be considered by the Ministry of Public Health. Dr. Bizri also expressed concern regarding the management of medical and chemical waste which may not be properly controlled and is often mixed with regular waste. This creates new concerns regarding exposure to radioactive material, sharp objects, and medication.

Although it would be more comforting to look at the current situation as a simple mismanagement crisis, we must take an active role in preventing its consequences. Efforts must come from the grassroots, and we must amend our actions if we expect change by sorting out our waste at home or selecting our representatives in the parliament.



## OUT LOUD

How has Pink Steps changed your life personally?



“The barrier was very high, but Pink Steps is helping me bring it down, knowing that there are people dedicated to help and listen.”

*Samia Ydlbi – Cancer Survivor*



“Participating in the brainstorming for creative ideas, helping in organizing and watching this project grow and mature to what it is now was an utter joy.”

*Rami Srouji, Med III*

## “PINK” IT FORWARD

*Anna Eid, Med II*

It is no secret that we like to pamper our loved ones, especially when they fall ill. We believe it is the ideal way to express our love and gratification. We make sure they don't move a muscle and get every delicious treat their heart desires. But what if this boundless love was doing more harm than good? What if a light jog and some yoga were the recipe to a happier and healthier life? What if reminding our sick loved ones that they are more than just patients is all that is needed for them to push forward? It was these questions that motivated Nataly Nasser Al Deen, a PhD candidate at AUB and Fullbright Alumnus, to start the Pink Steps Movement.

Inspired by her own personal hardships as one of her close family members fell ill, Nataly decided to make a difference in the life of breast cancer patients. Pink Steps is a newly founded organization conceived by the generous contribution of the U.S. Department of State's Bureau of Educational and Cultural Affairs, the support of the AUB Charles Hostler Student Center, and the help of the NGO One Wig Stand, Lebanese Breast Cancer Foundation, and Naef K. Basile Center. Its members are dedicated students who came together to carry out a well-studied and calculated series of activities that would change the lifestyle of women living with breast cancer. The long-term goal of the movement is to prevent recurrences in women who have/had breast cancer, but the short-term aim is to enhance the wellbeing of these women by solidifying the bond between their mind and body. Pink Steps is meant to promote physical fitness in breast cancer survivors while providing a joyful sanctuary and community for these women. The movement offers the perfect platform for women to connect with others who understand their hardships not merely on a psychosocial level, but also on a physical and personal one.

Nine brave women have embarked on the Pink Steps journey so far. These women have been provided with a pedometer to mark their daily steps. Every Saturday, they participate in fun activities organized for them including Zumba, belly dancing, yoga, and even drama classes. At the end of each week, the participants fill out an assessment form and experience their progress firsthand. By the end of the intervention cycle (12 weeks), each of the ladies is expected to fill out the “Oxford Happiness Questionnaire” that helps them determine their current level of happiness and the effectiveness of the Pink Steps interventions. In addition to its psychological benefits, the program puts forward a set of nutritional guidelines that encourage healthy habits and a convenient diet. By promoting a healthy lifestyle, Pink Steps represents a different way of caring for patients: one that empowers rather than victimizes them in their struggle.

Breast cancer is certainly not a walk in the park, and to tackle it from all its angles poses an immeasurable difficulty. Knowing that there are those amongst us who are dedicating their time and innovation towards making this obstacle durable provides the glimmer of hope all women need to overcome their hardships and gives them the strength to “walk steps ahead of cancer.”



# SHATTERED FUNDAMENTAL ASSUMPTIONS: EXAMINING THE REFUGEE EXPERIENCE

*Sarah Jamali, Med I*

The Syrian refugee crisis is an ongoing issue that has had multiple repercussions on our country. Seeing how Lebanon was impacted by this influx has caused some to harbor negative attitudes towards refugees. However, understanding what these survivors have been through is vital. A moment of introspection would allow us to analyze the influence of the refugees' traumatic experiences on their psychological health. If we were in their place, how would we have reacted to such extreme and horrifying events? Just imagine how one would feel if they had to leave their home and life behind, only to live in an unwelcoming country?

In 1992, Janoff-Bulman published an innovative book in which she articulated her theory of 'shattered assumptions'. The popularity of her model allowed it to become widely adopted and extensively researched in the field of trauma psychology. Elaborations on her theories have inspired a variety of new books and arguments on trauma-related topics such as violence, cruelty, and loss. The main idea of the 'shattered assumptions' theory is that, at our core, each one of us makes three fundamental assumptions about the relationship between the world and ourselves.

The first assumption we carry is that the world is benevolent: it is generally a good place filled with caring people, and harm feels distant to us. Many citizens may be pessimistic about the political and economical conditions in Lebanon, but despite sentiments of hopelessness regarding our national situation, people are often still optimistic about their own futures. Ultimately, our perceived outcomes are not tied to the outcomes of our surrounding environment, and so our world is benevolent. For refugees who continue to brave one hardship after the other, their world is harsh. They survive day by day in instability, amongst strangers, with no prospects of a better future. In their time of need, their supposedly benevolent world has abandoned them. They have been betrayed by the very beliefs that once served an adaptive role in their lives. The overwhelming harshness of their situation might lead many of them to adopt a drastic negative appraisal of the world and cause many to detach from society and lose access to the comfort that was once provided by their surrounding community.

The second assumption, based on the 'just world hypothesis' and as mentioned by Bulman in her book, assumes that good things happen to good people. Outcomes are distributed according to individual merit in an attempt to assign meaning to the events that occur. This explains the origin of victim-blaming, since negative experiences are perceived as punishments to certain actions. For instance, we tend to reprimand poor families for having too many children, and we blame victims of muggings for walking alone at night. Thus, we assume that we are in control of what happens to us through our behavior, and this allows us to feel protected from misfortune if we are "good." In the case of the refugees, there is no meaning in the horror, and no sense of control over their future. They did not deserve what was brought upon them or the ongoing cruelty they continue to face. There is also nothing they can do to improve their current situation and no realistic behavior that could alter their fate. The struggle becomes pointless as they may be doomed to live out the rest of their days in misery. This learned helplessness is linked with various forms of mental illnesses, including depression and posttraumatic stress disorder (PTSD).

The final assumption is that the self is worthy. We perceive ourselves as capable and moral individuals who can overcome the obstacles of life and emerge successfully. We evaluate ourselves positively and accordingly, we deserve to have good things happen to us. These beliefs are first fostered during infancy, when a trusting relationship is developed with our caretakers. A nurturing environment, provided by a loving parent, allows us to internalize the idea that we deserve to be cared for. Self-worth can be abolished by a traumatizing event and feelings of personal insignificance may then grow. Refugees may begin to believe that they do not deserve basic human rights and subsequently fall into the arms of depression, with thoughts such as, "If we are worthless, then why should anyone care for us?" The growth of these harmful thought processes causes a dangerous deterioration in mental health.

The shattering of all three assumptions seriously threatens an individual's psychological integrity. For these refugees, their adaptive internal core has disintegrated. Their world has lost its benevolence, its meaning, and it has betrayed them. Aggravated by their current living conditions, these victims succumb to various forms of mental illness. In addition, trauma is contagious and can spread within families and communities. We, as fellow human beings with our fundamental assumptions held intact, should recognize these people's hardships in order to maintain a humanistic attitude towards their situation. Acknowledging all the internal shifts that they have experienced is a first step in helping these survivors embark on the road to recovery.

# ! OUT LOUD

Do you think genetics is a local giant in slumber?



“Genetic counselors work as patient advocates and educators who enhance the patient’s quality of life. It is essential to increase awareness whether through NGOs or the Ministry of Health.”

*Hadi Abou El Hassan, Med II*



“Since each individual case is unique, it is more effective for people to speak to their doctors and weigh out the risks individually than await NGOs to spread awareness.”

*Carla Stephan, Med III*

## GENETICS: A LOCAL SOCIOECONOMIC GIANT IN SLUMBER

*Sarah El Halaby, Med II*

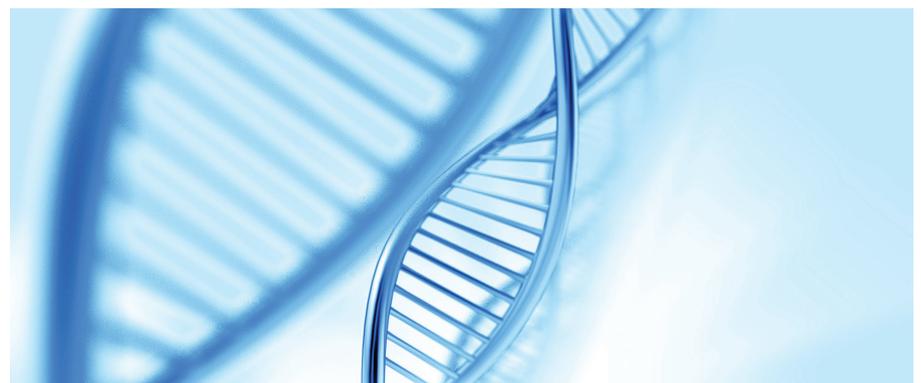
The history of medicine has exemplified to us, on various occasions, the benefits of early prevention over cure. Today, we remain true to history’s trials and preach accordingly in public health and medicine alike. Prevention is cost-effective, as it reduces the finances incurred by the government and insurance companies, as well as the out-of-pocket expenses of the individual for medications, consultations, and other countless procedures. From this flow of thought, and in recognition of the popular tradition of consanguineous marriage and the stringent abortion laws in Lebanon, an important entity is drawn forth: genetics as a field of prevention and management.

Genetic counseling, a rich and thriving field, tackles several patient concerns such as testing for a possible fetal genetic anomaly in a family with genetic diseases, advising potential mothers who are above the age of 35, and uncovering reasons behind miscarriages and infertility. Genetic counseling can also be applied in personalized medicine and in detecting differences in drug uptake and processing. Needless to say, this service primarily aims at providing the population with tangible answers to unanswered dilemmas.

Additionally, genetic testing serves as a powerful public health management tool and great economic and social benefactor if used wisely. Take B-Thalassemia in Lebanon for instance. In 1994, a law requiring consanguineous potential spouses to test for B-thalassemia given a family history was issued. This proved to be a remarkable success that generously reflected itself in decreasing the numbers of infants born with B-thalassemia. Many similar conditions could benefit from this course of screening, pre-natal risk calculation, and consequent counseling, including familial hypercholesterolemia, cardiomyopathy, and several biochemical diseases that debilitate the individual and reduce his/her quality of life.

In Lebanon, routine genetic testing is only applied in prenatal care where tests are performed in-utero to screen for aneuploidy cases. However, there are only two centers that offer genetic counseling services in Lebanon: AUBMC and Hotel Dieu de France. In light of the importance of genetic counseling on both the individual and population level, and the availability of two specialized centers in the country, speculation follows about the medical field’s appreciation of this service. Medical students in Lebanon, though knowledgeable about genetics as a field of study, do not receive the ideal training to harness genetic testing and counseling.

A considerable speculation remains concerning the public’s willingness to embrace screening and pre-natal counseling as a part and parcel of an improved and personalized standard of care. Concerning the difficulties that genetics might face in its pre-implementation phase, we only have our personal speculations on the matter, as very little is known to the general population about the power of genetics as an investment. Realistically speaking, we can only hope for a prospective success in creating a social, cultural and economic harbor to receive this implementation in its best shape. The role of public health emerges here, as it may invaluablely assist in spreading awareness about genetic conditions and the related propagating factors.



## POETRY STAND

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### WHEN COFFEE NAPS

*Sera Chamseddine, Med II*

My table tells me how  
Many arteries exist in venous anastomoses  
And somehow it makes sense

I sip my coffee from a brown straw  
And I feel it running into my veins  
And into my brain,  
Where it goes to sleep.  
Even coffee needs its rest

And when I stare around these macroscopic words  
I feel tiny.  
The world starts to make sense for milliseconds  
And then it doesn't and my table talks again and  
The coffee wakes up but  
My mind doesn't.

Somehow in between these episodes the jargon  
Diffuses into my neurons  
And creates vacancy

I lose some, I gain some  
Constant Nitrogen balance  
Indicates I am fully grown but,  
Constant jargon balance  
Means that there is only  
Time for one of us to sleep  
And coffee is  
Narcoleptic

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### THE ROAD NOT TAKEN

*Zein Saadeddin, Med III*

Medical school,  
a dream sought and finally achieved,  
where for a while we thought we made it all through  
only to find that every step is but another "step"  
lying ahead  
along that path we chose to pursue.

With an aroma of formalin, our first year started,  
as the journey through the human body all began  
with a corpse to explore and many books in hand—  
lost and anxious yet restless to more deeply seek  
it takes a lot to help and cure and be.

Second year ended with the study of the brain  
to make us have explored every bodily domain  
And with clashing plans in mind  
to fit a schedule that yet never was planned  
in preparation for the two best years to come.

Dressed in white coats on the very first day of year three,  
almost armored with knowledge, almost ready to treat  
feeling all very eager but not yet aware,  
of how far more it takes  
to truly learn to heal.

On the wards, it's a different world,  
with frail patients in pain seeking cure—  
sleepless floors and dedicated doctors on call  
and us not yet ripe yet never failing to provide  
the little best we can, realizing it's all about time.

# OUT LOUD

Is medicine more of a science or an art?



“While the science of medicine cures, it is the art of medicine that heals.”

Lana Khalil, Med II



“A successful doctor has to be an artist in practice, equipped with scientific knowledge in medicine.”

Jawad Fares, Med III

## FROM EINSTEIN TO PICASSO

Rama Al Hamed, Med II

From the gruesome prehistoric trepanning to the deadly Ancient Egyptian bloodletting and the modern Star Trek Bionic Eye, medicine has been evolving exponentially. It is tough not to be awe-struck by the imagination-pinching and creativity-inducing technologies that have been incorporated into medical practices. Taking technological advancements aside, medicine has managed to evolve in ways even more determining, ways that have resulted in fundamentally questioning the definition of medicine: Is it a science or is it an art?

One thing is for sure: medicine is not purely a science just like physics or chemistry. It is not quite right to classify “why people get sick” under the same category as “why two chemicals react”. Can medicine be defined as a science solely because it is based on a foundation of multiple pure scientific disciplines? Is the knowledge of science enough for an astute physician to diagnose and heal a patient?

DN Decyk, in his 1996 address on the The Fine Art of Teaching Philosophy, defined art as “a skill acquired by experience or observation” (Decyk, 1996). According to this definition, art is as applicable to medicine as it is to philosophy. We often hear of physicians being criticized, not for their scientific paucity, but rather for the scarcity of their compassion and the dearth of their empathy. As such, as scientific as medicine could be, there is always an intrinsic art to medical practice in alleviating patients’ anxiety and containing their concerns. No matter how inexperienced or well-trained doctors are, their effectiveness is determined by how well they can care for their patients. Is it not an art being able to feel what the patient is feeling and think what they are thinking and act accordingly?

Art’s involvement in medicine goes beyond just that. For instance, how could it have been possible to establish the foundations of human anatomy if it were not for an artistic touch that managed to detail the body’s contours? Interestingly enough, art has become a mode of message delivery. A campaign to decrease heart disease in England found that people were more likely to respond to “Dance makes the heart stronger” than “Exercise makes the heart stronger”. It is, as such, safe to say that art has managed to become a therapeutic modality that modern medicine utilizes to optimize patient care.

Having said all the above, we can deduce that medicine is a mixture of both, science and art. The scientific foundation of medicine would fail, if not cemented by the artistic aspect of the practice. A physician, before being a diagnostician, is a caregiver. Diagnosing a disease requires a well-informed doctor; however, being a caregiver requires much more than that. No treatment is optimal if solely dependent on a bunch of prescribed drugs. Compared to its distinguished history of caring and comforting, the scientific basis of medicine is relatively recent (Goldman and Dennis, 2004). As such, art and science in medicine are like the two faces of the same coin – both are equally necessary to give value to what it is.

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# MEDIA-CINE

*Christopher Maroun, Med II*

The phrase “Google it” has become as colloquial in today’s culture as hello or goodbye. These days, there is almost no question you cannot find the answer to on the internet. However, easy access to information doesn’t necessarily mean access to the correct information. As such, we are bombarded on a daily basis with shared Facebook posts and blog articles that may or may not be as accurate as their flashy headlines make them seem. Finding legitimate information is not as difficult as some people may think; however, it does take some effort. Admittedly, most people are so busy trying to keep up with their own daily lives that they would rather stay up-to-date in the most passive ways possible; and that’s where the media comes in. The sources of information used by the media are not always apparent. In case that information is not totally correct, media outlets become a very dangerous mediator of mass opinion. When it comes to medicine, the danger of giving false information can be far more detrimental than in other areas of news coverage. Not only may some people depend on the media to provide them with accurate medical information, but it can also shape the way they view the healthcare system as a whole.

Quite a recent example of a less-than-legitimate story that swept through headlines was the advent of the deadly “Guillain-Barré Virus”, which reportedly left its victims “crippled and bankrupt” according to Lebanese news sources. Within a few days, the hype dissipated, as it was gradually understood that in fact, no such virus exists. Any second year medical student will tell you that the phenomenon being discussed is known as Guillain-Barré syndrome, a rare yet often reversible post-viral complication. Despite the lack of permanent damage as a result of this misrepresentation, the implications at the time created a state of fear and paranoia that even caused some parents to keep their children home from school. The news outlets either did not understand the syndrome completely or sensationalized and falsely reported the information to create hype. Whatever the reason, this leads one to ask the simple question: where do news outlets get their information from?

A very recent study conducted by AUB’s own Dr. Fadi El-Jardali et al. and the Department of Health Management and Policy showed that 75% of the 1,279 printed media articles they reviewed did not provide for any evidence in their health reporting. Out of the 277 that did, only 7.8% used peer-reviewed studies or studies from academic institutions. These numbers are alarming, as they reflect a severe lack in correspondence between what is reported and what is deemed as credible.

Other than mixing up a rare syndrome with a deadly virus, questionable reporting by the media in the recent past has had far more serious consequences. It has happened before where the media has taken on the role of the jury in various medical cases, interfering with the judicial process and influencing the outcome of such cases. Regardless of whether or not the doctors’ actions were actually according to medical guidelines or not, critics of the media’s coverage of these cases agreed that there were statements made that clearly judged the doctors’ actions without any legitimate medical reasoning. Malpractice trials are not uncommon, yet they are meant to be handled by an appointed body with the medical knowledge and responsibility to fully understand and deal with cases in an appropriate fashion. Irrespective of the facts of these cases, it is clear that the media can sometimes overstep its boundaries, which eventually leads to the premature judgment of these doctors.

On another note, the point of this article is not to label the media as medicine’s enemy. Granted, if an Ebola outbreak were to happen in my city, I would want nothing less than to see every electronic screen in my vicinity flashing headlines about it. The media is always going to be the quickest way to disseminate information, and therefore the potential synergy between medicine and the media can serve as a great way to reach out to people about important issues. These include the benefits of vaccination and awareness about screening programs taking place throughout the country.

In light of its influence on the masses, the media’s role in reporting on medical topics should be based on relaying facts instead of making dramatic and uneducated headlines. This is especially true in sensitive cases that may be dramatized to increase the number of viewers rather than benefit and inform the audience. As viewers we should always be critical of the news we read, so that we aren’t blinded by the next flashy headline.

## OUT LOUD

Are there times when doctors should avoid revealing mistakes?



“It’s especially important that a doctor be held accountable for his/her mistakes being as such an essential factor of his/ her reliability.”

*Divina Hasbani, Med I*



“Honesty in the case of medical errors is ideal. It respects the physician-patient relationship in society and may even improve the doctor’s transparency.”

*Youssef Saklawi, Med I*

## BEYOND THE “DO NO HARM”

*Nadeem Bilani, Med I*

To err is human, and doctors are no exception. With shifts that witness the comings and goings of daylight, dubious medical scenarios, and difficult or non-compromising patients, it is not difficult to understand why doctors sometimes make mistakes. What happens when a doctor slips up? One error in practice, one lapse in judgment or even one documentation failure – given the right catalytic environment – could not only harm a patient, but also permanently tarnish their career. To become a doctor, a person has to make life-changing sacrifices. In the face of such circumstances, one might be inclined to indulge in the slippery slope of ethics accounting: believing the exchange of our good deeds permits occasional unethical digressions. However, medical mistakes should not be accepted as a norm in our careers but should rather be viewed as an unfortunate consequence of our profession.

What if, instead, you were a witness to a medical mistake? Would you refrain from disclosing information about the errors of a colleague if his or her reputation were on the line? Educators, mentors and society expect medical students to adhere to a higher moral caliber of thinking, which is considered to be a reasonable demand considering the delicate nature of their work. Compromising one’s relationship with a colleague to make the right ethical step is not a rule that is always adhered to. It is sometimes easier to turn the other cheek when a friend errs because one tends to be able to make excuses for the individual, thus hyper-humanizing one’s perception of that person. In doing so, a doctor is succumbing to self-serving tendencies when his or her ultimate responsibility should be to pursue justice for the society as a whole.

Medical students themselves are also in a position that can lead to its fair share of unintended mistakes. Very early on in their careers, students acquire experience through interacting with patients. They thus have access to private, intimate information. A student would expect to be reprimanded on the occasion of disclosing details about patients in a public setting, effectively breaking confidentiality. Not unheard of is the practice of medical students prescribing medication despite not being licensed to do so. Both examples highlight instances during which students fail to adhere to ethical standards mainly because they simply don’t know any better. Furthermore, one might argue that students cannot be held as accountable for their mistakes as licensed medical practitioners; there should be room to make mistakes and learn from them. However, to what extent can the quality of patient care be compromised to allow for the education of doctors-in-training? Many would say it should not be so, not even marginally.

However, not all mistakes are unintentional. Medical professionals are given power and privileges that others do not have, and sometimes this is exploited. Just this past summer, an oncologist in Detroit – Dr. Farid Fata – was prosecuted for falsely diagnosing patients with cancer in order to collect vast sums of money from unnecessary treatments. This is a clear case where the blame can only be placed on the physician, a physician who abused the power and respect associated with his profession, for purely monetary gains. Should this be judged in the same way as a case where the consequences were unintentional?

A common complaint circulating amongst medical professionals in Lebanon is that they are under intense media scrutiny. In a country where the sway of the media could see a doctor incarcerated for claims of malpractice, it is understandable for doctors to feel the need to protect themselves and “their own” – even if this involves covering up malpractice. But in doing so, they betray both the very basic code of conduct of ethical medicine and the Hippocratic Oath they swore upon at graduation. The temptation to rationalize dishonesty can be severe when the stakes are high and personal, which is why it is important for medical students to practice steadfast moral reasoning even in the most intimate of situations.

# INTERVIEW WITH PRESIDENT OF AUB: DR. FADLO KHURI

*Interview was conducted by Rawan Safa and Sima Sharara, Med II*

**Q: What made you apply to the position of president of AUB?**

A: I was actually asked to apply by several members of the Board of Trustees. I feel I have the closest ties with this university, and there was never an option to not take the job.

**Q: Your family has a rich history at AUB, and you come from a long line of accomplished people. How did that influence you while growing up?**

A: Of course it impacted me! My father is a two times Penrose award winner at AUB. My mother was ranked 1st in the Lebanese Bacalaureate, earned a BS in Mathematics at AUB, a masters from Harvard and PhD from Yale. I felt I constantly failed to measure up; however, my family was always supportive of my choices and we all inherited the love for this institution.

**Q: What challenges do you expect to face as president?**

A: This is a complex job! I am finding difficulties with having an open dialogue with the students. I have managed to restore tenure to the university for the first time in 30 years\*. Other challenges include decelerating the increase in tuition. I would also love to talk to students about mental health, careers, and mentorship. Elections should be direct and fair, and I want AUB to evolve to direct representation, rather than through surrogates.

\* This interview was conducted before tenure was restored in AUB

**Q: What role do you think AUB has to play in combating the political and social changes occurring in the Arab world today?**

A: It would be naïve to think that students are ready to shed their political ties that they have grown up with and start to think independently right away. AUB has been wonderful for the first 150 years at educating great students and helping them succeed intellectually and personally. Our new mission for the next 150 is to help propel students as agents of effective change in society.

**Q: How do you think AUB is doing academically in the region and worldwide?**

A: I believe we are doing well, but we should be greater. We have been little bit too comfortable and a little bit arrogant. I feel that is part of our country's problem. We should infuse the place with more passion and more anxiety to make a difference.

**Q: Do you plan on undertaking any medical responsibilities while president?**

A: I enjoy patient care and leadership, and hopefully I will start seeing patients next month in AUBMC. I also plan to build a new research team here! I am ready to teach and help in research, especially in lung cancer and tobacco cessation.

**Q: When you were in medical school, how did you finally come to choose your specialty?**

A: Initially, I wanted to go into psychiatry. However, my first patient in med school was an very nice elderly man with pancreatic cancer. He died 4 and a half weeks later. I felt very powerless and that triggered something in me. That patient and my role models later on swung me to oncology. There is also a very intimate and strong patient contact in that field, which I love.

**Q: Which profession other than your own would you like to attempt?**

A: When I was younger, I wanted to be an astronaut, but there were no space programs here. I also wanted to be Batman, but that role was occupied. I think I would pick to be a Historian or go for becoming the General manager of my favorite baseball team, Red Sox Boston.

**Q: Which profession other than yours would you never attempt?**

A: I always trusted the vote of the people regarding politics, but the concept of campaigning for votes feels alien to me. I also believe both finance and running a center for performing arts are things I couldn't do.

**Q: What do you enjoy doing in your spare time?**

A: I love going for walks with my wife and daughter. I also enjoy watching some athletic events, theater and going around. I love life!

**Q: What advice would you give to medical students at AUBMC?**

A: Make yourselves life long students. Enjoy the pursuit of learning, judgment and clinical skills, and the company and trust of people.



## OUT LOUD

What are your thoughts on this year's NGA?



“The NGA was a wonderful experience, a real opportunity to meet many interesting people! It was an escape from the daily grind of medicine!”

*Cindy Traboulsi, Med I*



“The experience was great; particularly the refugee lecture. It was eye opening and provided insight on the daily challenges that we might face when providing healthcare to people who genuinely need it.”

*Ramez Kouzy, Med I*

## LIVE LOVE LEMSIC...AND ITS NGA!

*Joseph Cheaib, Med III*

A medical student's education starts in medical school, where one is taught the basic building blocks of medicine. Thereafter, it is all the domains of his/her life, whether academic, philanthropic, or social that contribute to the kind of doctor that student will become. In light of that, The Lebanese Medical Students' International Committee, LeMSIC, is a major platform for medical students around Lebanon, enabling them to develop their academic knowledge as well as all other complementary aspects of social competence and self-improvement. Medical students are given the chance to perceive medicine from a different and wider perspective in order to make a positive impact on their community through multiple social projects, including, but not limited to, World AIDS Day, mental health awareness, and diabetes screening campaigns. Moreover, LeMSIC provides its members an opportunity to travel abroad and experience new cultures in its one-month exchange program. As such, it becomes not only a leeway from the tiresome studying and exams but also a forum through which medical students can nationally and internationally network and collaborate with others sharing their passion for social responsibility and civic duty.

As part of its tradition, LeMSIC kicked off the new term of 2015/2016 with its annual National General Assembly (NGA). However, this year's NGA was like no other! With an unprecedented record attendance of 250 medical students, the Organizing Committee was extremely successful in capturing the interest of new members all around Lebanon. Newly introduced in this NGA was an adaptation of the concept of speed dating. The attendees were equally divided into six groups, and they rotated around six LeMSIC committees' stands. Each standing committee had to impress as many students as possible to join their team in less than 20 minutes. According to Margueritta El Asmar, the National Officer on Medical Education, "The speed dating concept allowed students to learn about the different standing committees and their projects, and decide accordingly on what sessions to attend. Students knew exactly where they wanted to be and thus were able to make positive contributions to the sessions."

Another reason for this NGA's exceptional success was its main theme: the refugee crisis in Lebanon. As medical students who are concerned with the surrounding social wellbeing and the multi-faceted approach to medicine, the NGA surely struck on a topic that is of vast importance to us. Dr. Rabih El Chammay, a representative of the Ministry of Public Health, was a guest speaker, and he delivered a sensational talk about the underestimated mental health aspect of the crisis. He focused on how the war deeply affects the psychology of the victims and reconstructs their perceived social reality. He also shed light on the National Mental Health Program that, in collaboration with the Lebanese Red Cross, aims to create a self-sufficient social environment for the refugees. He emphasized the importance of educating the refugees and initiating interactive programs that could positively affect their general psychosocial status. "The lecture was great," said Youssef Ghosn, a new member in LeMSIC, "however, it lacked the incorporation of appropriate plans or recommendations that could guide us as medical students to lay the foundation of a possible solution." Christian Abou Nader, LeMSIC president, said, "We are currently working at full throttle to become an official NGO by the start of 2016." As an NGO, LeMSIC, and with the efforts exerted, would certainly acquire a bigger role in society and hopefully accelerate the resolution of this refugee crisis.

If two months of hard preparations have yielded two memorable and fruitful days, there is no doubt that a year of work would be exponentially more rewarding. Stay tuned for what LeMSIC has to bring this year.

# UNRAVELING THE MIND: MAN'S JOURNEY INWARD

*Ali El Mokahal, Med I*

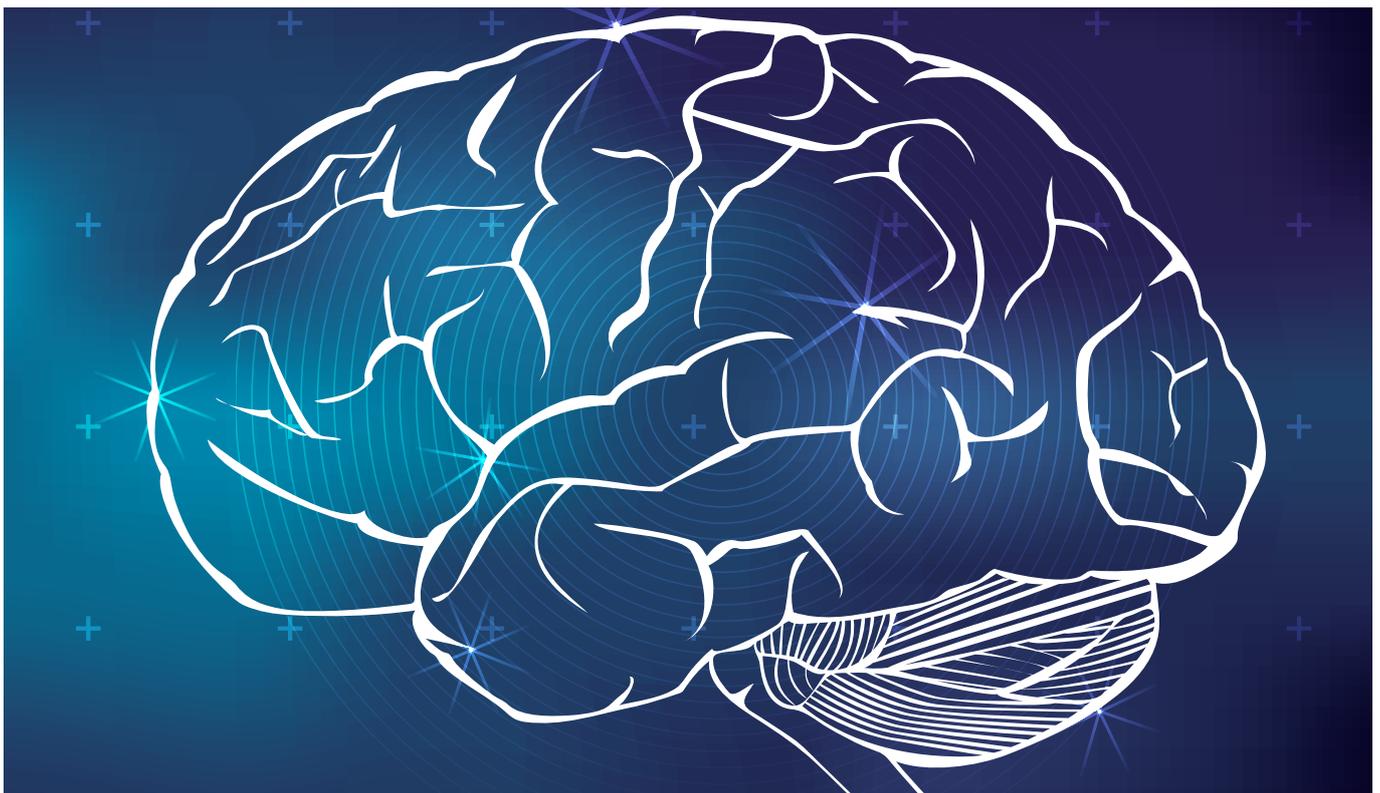
Trephination, which dates back to 7000 BC, was man's first neurosurgical procedure. The surgical practice was performed by priests, who drilled holes into the skulls of sick people in order to treat them. It was believed that those who suffered from mental ailments were possessed by evil demons, and it was only through the puncturing of the skull that these demons could leave the afflicted.

Fast forward to this century, where neurologists are currently using Electro-Convulsive therapy (ECT), a procedure where small currents of electricity are sent to the brain in order to induce a seizure as a therapeutic modality in the treatment of severe cases of refractory depression, bipolar disorder and schizophrenia. Two theories exist on how these medically-induced seizures improve the condition of patients. Many believe that these seizures either cause a change in the concentrations of neurotransmitters or they correct the regulation of stress hormones.

The scientific consensus is to treat the mind as an emergent feature of the brain and not as a supernatural entity. To use the computer as an analogy: the mind is the software and the brain is the hardware that allows the mind to function. Nowadays, the task of neurologists and psychiatrists is to unravel the convoluted relationship between the mind and the brain. Today, we have alternative explanations for an "evil soul" other than possession by evil spirits; explanations that tackle the issue at the level of complex arrays of synaptic connections and their neurotransmitters.

With all the advances in science, however, we are still far from a clear understanding of the relationship between the mind and the brain. We still do not fully understand how the interactions between physical entities are able to give rise to our subjective conscious experience. For example, we are able to explain pain down to the molecular level, but we are unable to explain how the feeling of pain emerges from these molecular arrangements. We could replicate these arrangements in robots, but it is unclear how we could get the robots to feel the subjective quality of pain in the same way that we do. As long as this dilemma exists, there will always be an explanatory gap between our mind and our physical state. Unlike the computer, our software can easily alter our hardware.

One pathological manifestation of this interaction is the category of 'conversion disorders', a type of psychosomatic disorder where a patient shows neurological symptoms such as lower limb paralysis or blindness with no apparent organic cause. These disorders often coincide with psychological trauma. Another bewildering occurrence is the placebo effect, which describes how one's expectations of benefitting from a treatment leads to eventual health improvement. Placebo is known to help with both physical and mental conditions, such as Irritable Bowel Syndrome (IBS) and depression. The mind appears to have the capacity to influence both physical and mental functions, and it is not disconnected from the body. For this reason, a good attitude towards treatment may go a long way in helping patients get better. What comes next in treatment is the unravelling of the connection between the brain and the mind, in order to provide treatment that is tailored to every individual's neuropsychiatric uniqueness.



## ! OUT LOUD

Do you think there should be special training for treating LGBT patients in a medical setting?



“I believe that physicians need to be trained; however, that’s only the technical aspect. One must build a culture of tolerance as not to delineate such individuals.”

*Khalil Choucair, Med II*



“I think there should be a proper training or at least an awareness program because doctors, like most people today, are scared of what they don’t know.”

*Sarah Jabre, Med II*

## BREAK THE SILENCE

*Ahmad Abou Mohammad, Med II*

The Lebanese Medical Association for Sexual Health (LebMASH) is a non-governmental organization (NGO) that addresses culturally sensitive topics such as sexual health and Lesbian, Gay, Bisexual, and Transgender (LGBT) health in general. One of their main projects is the annual “Break the Silence” competition where students in health-related fields submit academic papers tackling women’s sexual health or LGBT health in Lebanon. The selected winner is awarded \$1,500 to cover travel and accommodation expenses to the annual Gay and Lesbian Medical Association (GLMA) conference that is held in the United States. The winner is also mentored by members of the board of LebMASH to help publish their research paper in a peer-reviewed journal. My project, titled “The need for mental health research among the LGBT community in Lebanon,” was officially selected in the 2015 Break the Silence competition which enabled me to attend GLMA’s 33<sup>rd</sup> annual conference in Portland, Oregon last September.

In Lebanon, data regarding discrimination towards the LGBT community in the healthcare setting remains scarce. That is not to say that inequality in healthcare does not exist. Although the National Mental Health Program, launched by the Lebanese Ministry of Public Health, highlights the LGBT community as a vulnerable group addressed in their strategic objectives, there are several other fields in medicine that have yet to acknowledge the LGBT community. Along the same lines, the Lebanese Psychiatric Society (LPS) recently released a statement refuting homosexuality as a disorder and yet the practice of Sexual Orientation Change Efforts (SOCE) such as the conversion therapy, an attempt to convert homosexual tendencies to heterosexual ones, remain prevalent among some healthcare professionals in Lebanon.

Inequality towards the LGBT community, in medicine, is most clearly observed in primary healthcare services. A primary care physician is usually the first contact for an individual with a health issue. Hence, it is essential that such physicians are trained to treat LGBT patients since these individuals are at increased risk for engaging in substance use and abuse, experiencing discrimination and violence, as well as developing mental health issues. Upon proper culturally-relevant training of primary care physicians, not only would homophobic attitudes towards LGBT patients within the clinical setting diminish, but their health issues may be more accurately addressed. Consequently, the quality of health services will improve.

In Lebanon, inequality extends to the gynecological setting, where healthcare providers have not had sufficient training in lesbian health. Issues of sexual activity such as safe-sex practices and risks of sexually transmitted infections are only some of the major concerns that may need to be reiterated in the gynecology clinic. Furthermore, studies show that the number one health issue for lesbians is obesity as highlighted by the GLMA conference. It is critical that such issues be addressed to improve the quality of healthcare for this population.

Both healthcare providers and medical researchers have yet to fully acknowledge sexual minorities, such as LGBT individuals, in Lebanon. Through both qualitative and quantitative research, one may begin to understand the current clinical situation, assess the level of equality in healthcare services, and eventually set realistic measurable outcomes for specific improvements.

# BRAIN PLASTICITY – REWIRING OUR UNDERSTANDING

Joy Ismail, PhD candidate

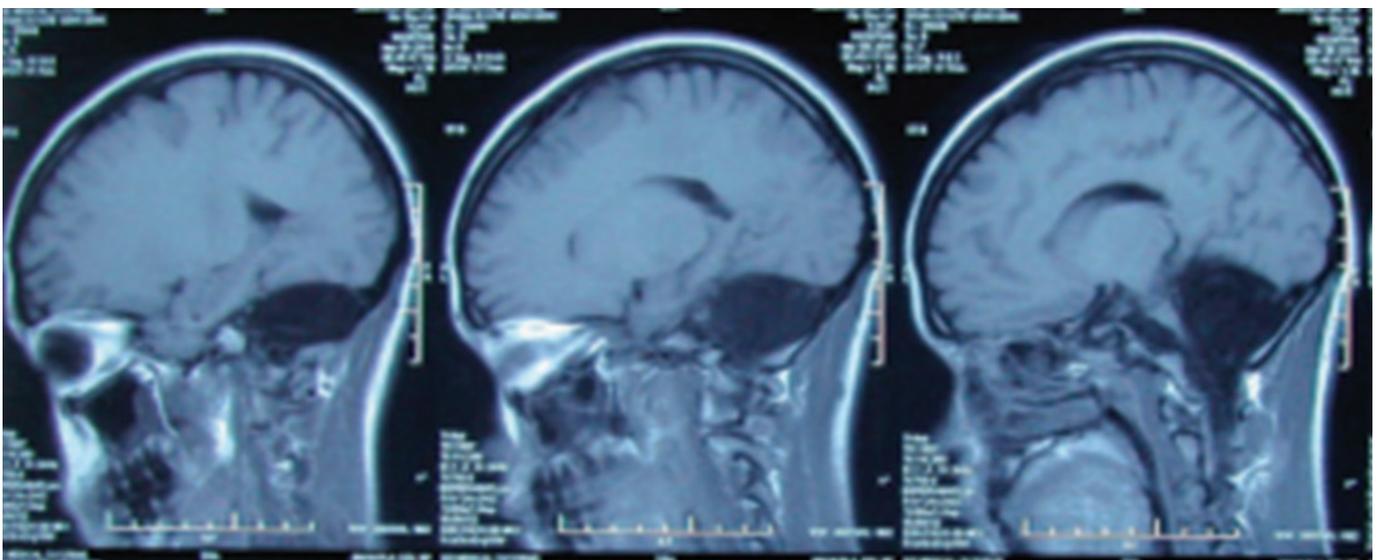
In textbooks, the brain can seem “dry,” with its hundreds of areas, thousands of nuclei, billions of neurons, and trillions of connections. However, in reality the central nervous system is one of the most intriguing and mysterious systems of the human body. Although science has made significant progress, there is still a long way to go in understanding the processes that underlie the brain’s functions and efficiency. Perhaps the most interesting is the brain’s ability to reorganize itself, as during recovery from injury or stroke, in a phenomenon known as plasticity.

A year ago, doctors discovered a twenty-four year old woman with no cerebellum in China. The cerebellum is known for its role in balance and motor coordination, in addition to its more recently discovered roles in learning and emotion. Prior to her presentation at the emergency department for an episode of nausea and prolonged dizziness, the twenty-four year old showed no serious symptoms. Although it took her a long time to start walking and talking as a child, she maintained a normal life. Other cases of people born without a cerebellum have been documented, but none of them lived past childhood. What is different about this woman? Her brain must have retained an incredible capacity for self-reorganization. Neural development is extremely complicated, but in a nutshell, once the protruding axons found empty space where the cerebellum should have been, they must have formed connections with other areas. That is, the circuits that are involved in motor coordination rewired and redirected traffic to areas that were intact. Since this is an extreme case of a structure being completely absent, the process was largely based on adaptation and perhaps “trial-and-error.” This can explain why other cases did not exhibit positive prognoses. Conducting in-depth studies on this patient would absolutely expand our knowledge about the power of circuits to circumvent even the most extreme of obstacles.

Another baffling case was found in Germany a few years ago and was the first of its kind. A 10-year-old girl born without a right hemisphere was able to see with both eyes. Typically, any congenital malformations or surgical removal (usually due to seizures) of one of the cortical hemispheres leads to visual defects in the contralateral eye. Accordingly, this patient should have had a small and defective visual field in her left eye but instead she had almost perfect vision in both eyes. Since this miraculous occurrence is the only case described so far, extensive studies were conducted on the patient. Plasticity again saved the day, as it appeared that the afferent fibers from the patient’s left retina rewired themselves to synapse onto the left hemisphere instead of simply disintegrating and failing to make any connections.

What can we take away from all of this? The brain is adaptive and capable of exhibiting reorganization and regeneration even in cases where theory and widely accepted “facts” deem it impossible. Second, plasticity is more likely to be successful, especially in such extreme cases, if the problem occurs early on. Such cases reveal the countless mysteries of the brain and have significant implications on the way we view it. The application of this knowledge has the potential to revolutionize medical practice and care.

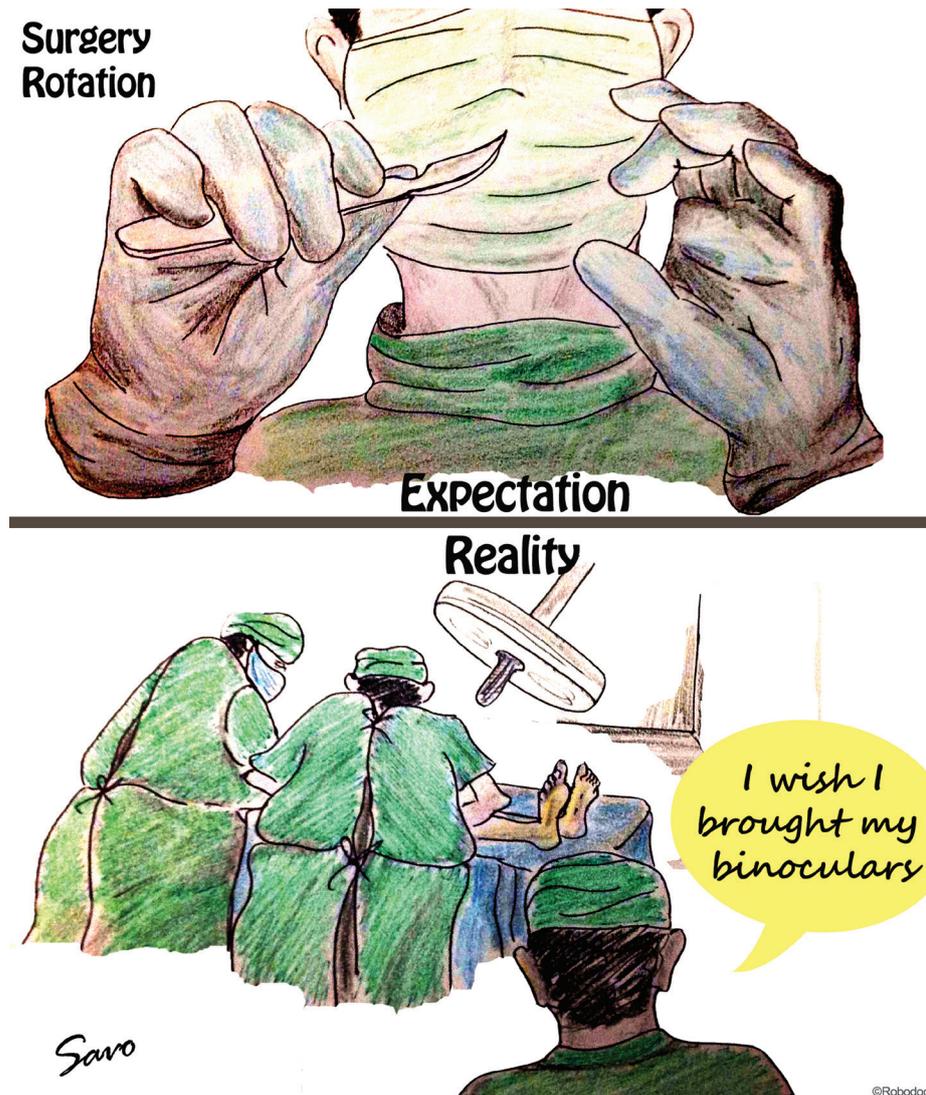
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