

SPRING 2023
EMAGAZINE

A hand is shown from the bottom, palm up, holding a glowing, translucent globe. The globe shows the outlines of continents and is surrounded by a network of white lines and dots, with several orange dots placed on the globe's surface. The background is a deep blue with abstract geometric patterns, including wireframe cubes and hexagonal circuit-like lines. The title text is centered over the globe in a large, bold, white sans-serif font.

A WORLD INSPIRED BY YOU.

FEATURING WORKS BY

➤ **YOUR HOSA PEERS**

FROM AROUND THE WORLD

From Problem to Solution

Bryan Liu, Ryan Tu, Bilal Siddiqi, Maria Geist

First-year students at the University of Ottawa, Canada

As children, research always seemed far-fetched. The idea of a job that revolved around discovering new things was fascinating but vaguely defined. Where do you even begin looking for something if it doesn't yet exist? In reality, research begins with a problem and the desire to find a solution ; whether it is a medical, biological, or environmental issue, any problem can evolve into a meaningful research proposal.

Coming straight from high school, we—Ryan, Bryan, and Bilal—earned a chance to work in a nano-technology research lab at the University of Ottawa Heart Institute (UOHI) during the summer before our first year of university. Although assigned different projects, the basis of all the work in the lab was to develop and test hydrogels for their mechanical properties and viability in living organisms.

When starting as research assistants, a big surprise for us was the number of scientific papers we had to read. Every experiment required extensive background knowledge to understand the theory, deduce expected results, and apply modifications to similar previously conducted studies. Having only a pandemic-constrained high school lab experience, another challenge was the limitations of our skill set, which at the time, consisted mostly of clicking a mouse during online labs. Luckily, we found ourselves surrounded by dedicated mentors with years of experience who were willing to devote their time to empowering younger students. Through this crucial mentorship, we learned valuable techniques outside the classroom, providing us with a solid foundation to pursue the issues we were passionate about. We learned many transferable skills, from simple routines such as pipetting to higher-level techniques such as biopsies.

We also learned the importance of concisely documenting work. This not only ensured that anyone who reads our notes later could interpret the results but it also allowed us to work on experiments over multiple days when meaningful observations would otherwise be forgotten. To support us with these long multi-part experiments, we created Standard Operating Protocols (SOPs). These SOPs ensured the reproducibility of the tests, should others wish to do the same experiments, and they provided us with a better understanding of the theory behind each technique. This in turn helped immensely as the experiments themselves were repeatedly refined to create a superior final product.

Although conducting experiments was fascinating, we spent much of our time familiarizing ourselves with the new environment. How did we do that? Through daily lab tasks such as filling pipette boxes, wiping down lab benches, and cleaning glassware. These tasks may seem boring, but they are critical for the safety of everyone in the lab and the contaminant-free use of equipment. Notably, we were tasked with taking inventory of all the chemicals in the lab. This meant comparing chemical names, product codes, and safety data sheets to classify compounds. Yet what began as a time-consuming and tedious task became a fruitful learning experience. Not only did we gain a deeper understanding of the previously incomprehensible substances surrounding us, but we discovered the importance of this assignment toward providing a higher level of organization and safety in the lab.

Following the summer, after beginning our studies at university, we met Maria and quickly bonded thanks to our collective eagerness and curiosity. Despite not having previously worked alongside us, Maria matched the group's passion for science and was driven to conduct research applicable to issues in her life. In particular, Maria's family has a history of high blood pressure. While searching for the causes of high blood pressure, Maria encountered fibromuscular dysplasia (FMD): a potentially inheritable disease that can result in high blood pressure, but also aneurysms and arterial dissections—symptoms that are possibly life-threatening. Delving deeper into the topic, she was disappointed in the lack of scientific knowledge available—how could a disease with such grave impacts be left overlooked? We bonded on similar grounds and soon formed a team in hopes of discovering more about FMD.

Armed with Maria's background knowledge and the lab members' hands-on experience, our collective team took the initiative to create our own research proposal. Unfortunately, the causes of FMD are only vaguely known to be associated with hormonal abnormalities and genetics. Nonetheless, during our first scan of past scientific literature, we discovered a pilot study by Sihol et al. suggesting that progesterone (a female reproductive hormone) influences FMD, but its association remains unclear (2015). In two other studies, we saw that excess progesterone during pregnancy was correlated with decreased arterial wall integrity via damaged connective tissue (Sheikh and O'Sullivan, 2012; Appleby et al., 2009). Thus, we decided to apply the results from both studies to form a new proposal exploring their relationship to each other: Do elevated progesterone levels lead to weakened connective tissue and act as a mechanism for FMD pathogenesis?

Given our research experience, we were equipped with the necessary laboratory techniques to test our hypothesis. Through an *in vivo* juvenile porcine model, we could test the effect of increasing levels of blood progesterone maintained through regular intramuscular injections alongside controls with normal blood levels of progesterone receiving inactive saline injections. This placebo injection ensures that the act of injecting is not the cause of any observations.

Then, we could monitor the progesterone levels using enzyme-linked immunosorbent assays (ELISA). ELISA kits can help visualize different concentrations of progesterone in the blood through a color gradient. An advantage of these kits is that they allow us to test the progesterone levels in under 30 minutes from a drop of blood, making them a rapid, minimally intrusive form of measurement. It uses test-dependent enzymes that attach to specific substrates (such as antibodies) mixed with a blood sample on an absorbent plate which changes color. The final color in our case would help identify the presence and concentration of progesterone ensuring the elevated levels as proposed.

We hypothesize that models with higher progesterone concentrations will have distorted arrangements of arterial connective tissue and rigid artery structure. Although we have yet to act on the proposal, we strongly believe in the potential impact our research could have. The results from this experiment could provide insight into therapies for treating FMD and it could validate the use of progesterone as a biomarker for predisposition to FMD. As mentioned before, research begins with a problem, and for us, this problem evolved into more than we ever could have imagined.

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Understanding Self-Injury: A Systematic Review of Psychological Data

Hannah Quiroz, Emily Rivera, and Bethany Storm

Veterans Memorial High School 7139

Division 7 Hosa Chapter 61906 Chartered Association

Common negative stereotypes relating to self injury are harmful, and simply untrue. According to our personal data-collection completed by teenagers 12-18 in Corpus Christi, TX, teenagers often partake in self-injury by means of intentionally over or undersleeping, cutting, burning and intentionally over or undersleeping as an outlet for immediate sensation to overwhelming emotions with the intention to release frustration, and not to die. However, non-suicidal self injury significantly increases risk for future suicide attempts and risk of mortality, therefore it is vital to understand why certain individuals only engage in NSSI whereas others engage in suicide attempts and suicidal self-harm. Physically, the act of self-harm causes similar releases of serotonin that an outburst of anger might. The latently cathartic behavior is often done out of frustration with ones-self, and results in immediate relief of self-affliction. Shame based self-harmers likely do not understand that the behavior is an attempt to express a behavior they have deemed as unacceptable. Better understanding of factors related to the occurrence of self-injurious behavior facilitates more efficient and appropriate assessment and treatment. By breaking the stigma surrounding mental health and self-sustained injury, we are one step closer to diminishing the magnitude of self injurious behavior.



ADDRESSING THE NATIONAL BLOOD SHORTAGE:

Exploring the Importance of Contributions from Donors and HOSA Chapters

Neal Fernandes

Imagine being stuck in a hospital room, watching as a loved one fights for their life. Every breath is a struggle, and every moment is filled with uncertainty. Doctors and nurses are frantically working to save them, but they are lacking a crucial resource: blood. What could have been a quick trip back home, turns into a long night as you wait on a resource that should be readily available. The clock is ticking, and every minute counts. Your loved one's life is at risk, and nothing can be done until blood arrives. This scenario is not uncommon in the United States, where the national blood shortage has reached a critical point. Doctors are forced to make challenging decisions about who should receive a blood transfusion. This shortage is a serious issue that has significant implications for patients and medical professionals.

Despite the work of blood banks and organizations, the demand for blood often exceeds the available supply, leading to critical shortages in areas all over the world. One of the primary causes of limited blood supply is a lack of donors. According to the Red Cross, only 3 percent of age-eligible people donate blood each year. There is not only a lack of blood donors but also an increasing demand for blood transfusions. This dwindling resource is essential for traumatic injuries, cancer treatments, chronic illnesses, and surgeries. Furthermore, the national blood shortage has significant consequences for patients and health professionals. About 1 in 7 people entering a hospital require blood. Failing to maintain an adequate blood supply in hospitals around the US can lead to delayed treatments. Prolonged waiting times for blood transfusions can increase the risk of infection and recovery time. Perhaps the greatest consequence applies to emergency procedures. Those who suffer traumatic injuries often require instant blood transfusions. The local availability of blood can make the difference between life and death for a patient in need. Additionally, medical professionals are forced to decide which specific patients will receive a blood transfusion. Individuals in rural communities are affected the most because life-saving blood may be reallocated to cities. By rationing blood and resorting to alternative treatment options, community health and patient outcomes are compromised.

Regardless of the increasing demand for blood across the US, individuals can help alleviate the shortage through blood donation. Donating blood is a simple and direct process that can save up to 3 lives per unit! Donated blood can be stored for up to 42 days and is often distributed to hospitals with a critical supply. You must be at least 16 years old and weigh at least 100 pounds to donate in most states. All it takes is a quick visit to a local blood donation center or community drive to make a difference. If you are ineligible to donate, there are still a plethora of ways to contribute, such as volunteering at a local hospital drive or recruiting donors in your community. Make sure to visit <https://www.redcrossblood.org/> to learn more about donating. Giving the gift of life to a patient is priceless, and all it takes is a single donation.

Moreover, HOSA-Future Health Professionals has played a vital role in facilitating and organizing blood drives across the globe. As an organization centered around enhancing healthcare around the world, HOSA has had a monumental impact on the national blood supply. Its collaboration with the Red Cross has helped raise blood shortage awareness and expanded community blood drives. Local chapters should take advantage of this remarkable opportunity and participate to support the healthcare community. To help combat the national blood shortage, Georgia HOSA partnered with LifeSouth Community Blood Centers to host their first blood drive at their State Leadership Conference! The drive was a tremendous success due to the massive turnout! HOSA members from all over the state helped save hundreds of lives.

Clearly, HOSA members have the potential to end the ongoing blood crisis. Now more than ever, it is imperative to take initiative and contribute to the blood supply. As Dr. Karl Landsteiner, the Nobel Prize winner and discoverer of the ABO blood group system, once said, "Blood is the most precious gift that anyone can give to another person – the gift of life." These words still ring true today, as the national blood shortage continues to impact people across the country. However, we can all do our part to help alleviate the shortage by donating blood. The time to act is now. Let us follow Dr. Landsteiner's wise words and give life to those in need. Organizations such as HOSA regularly hold community drives and offer resources for those interested in supporting blood donation efforts. You can visit the American Red Cross to learn more about registering and donating. Together, we can support our communities and ensure a brighter future for everyone.



Guest President's Blog

As we embark on State Conference season, this month, we share a Rising to the Moment “guest” blog, courtesy of HOSA Secondary Board Representative Corey He!



It seems like it was yesterday when I was elected to serve as a state officer in New Jersey. At the time – around March of 2021 – I had convinced myself that I was an individual capable of filling the shoes of my predecessor and had a general idea of the skillset necessary to succeed in this position.

I was completely wrong.

Some of my first experiences as a state officer, such as the Washington Leadership Academy and other early speaking opportunities, were rather humbling and made for an awakening. I quickly learned that I had a long way to go before I could consider myself anywhere near capable. To put it simply – and bluntly (from one of my most trusted mentors) – I was a rather boring speaker, a bland personality, and an individual who needed to truthfully reflect on what it means to be a professional “servant leader.”

When I was first elected to state office, I structured my campaign around the idea that I would push for large agendas and great initiatives for our members. As the year went on, however, I came to realize that although such ambitious ideas are great, they aren't at the essence of what makes a memorable state officer. At the end of the day, the membership of New Jersey HOSA simply wanted to get to know me as a person – not as an officer, but as a friend, a peer, and a fellow member passionate about the mission of HOSA.

Once I made this critical realization, I began to explore the true bounds of my platform as a state officer. Although I would never have considered myself “reserved” or “introverted” at the time, I now see that I was initially hiding a facet of myself that ultimately became critical in fostering that powerful connection between me and the membership. I made it a priority to crawl out of my shell: I needed the members to know

that behind my HOSA suit was a person who loves music, is a self-diagnosed sushi and ice cream addict, and is an absolute sports fanatic who spends his Sundays binging all sports networks.

Through subsequent initiatives through NJ HOSA's social media platforms – such as weekly Wordle giveaways – and interactive reels, I set about forging this new connection. I knew that once it was all said and done, I would be satisfied with the material and tangible contributions that I had made to NJ HOSA – these are the contributions and initiatives that one might be able to write down on a resume or on a random sheet of paper. Yet I also knew that the lasting impression that I would leave on the members would actually come from “intangible” contributions – contributions that showcased who I am as a person both in and out of a HOSA setting. These were the contributions that mattered more to me and those who I served.

As my term as a state officer wrapped up, I wasn't sure if I could see myself on the IEC – despite making some strides in personal and professional growth, I still lacked a certain degree of self confidence and self-esteem. I envisioned those on the IEC to be highly-accomplished members of their respective communities with years and years of experience in HOSA. I found myself at odds with that: I had only been a state officer for one year, and I felt that I had so much more to learn about myself and what leadership entails; how could I possibly fit the role of an IEC officer?

Although I may not have believed in myself, those around me did, and I was fortunate to have had such a tremendous support system that challenged me to always seek the next challenge. When I heard my name called at the 2022 International Leadership Conference and walked out onto the stage, I was overcome by a

sense of wild excitement and newfound appreciation for not only those who had believed in me, but also those who voted for me and put their trust in me.

The overwhelming sense of surprise and euphoria that followed my election to the IEC quickly gave way to imposter syndrome. I found myself routinely asking myself, *Do I belong?* It was a rather lonely sensation – I questioned my capabilities and felt that perhaps I was the “weak link” on an IEC filled with professional expertise and leadership talent.

Although I probably shouldn't have been in the mindset of doubting myself, I was in the perfect place to be asking these questions because I could not have asked for a more supportive and endearing IEC to be a part of. Right from the start, my fellow council members welcomed me with open arms, and we quickly formed close friendships despite being professional colleagues. When it was time to work, we were all business – when it was time to relax, we set aside our HOSA pins and came to know each other as people and as lifelong friends.

Experiences like this not only allowed me to overcome my imposter syndrome, but to also recognize the importance of a work-life balance – especially since I was starting my freshman year of college. Making the transition from high school to college while serving on the IEC was definitely a huge challenge – some professors are more understanding than others – but being able to share experiences from other fellow IEC members overcoming similar academic challenges made my situation seem much more manageable.

Some of the other members of the IEC have incredible stories to tell and inspiring experiences to share, and I know without a doubt that they will go on to be the change that they wish to see in the world. Being able to share the same room with them and sometimes just talk about life with them gives me a sense of “down-to-earth-ness” that I had never experienced before. I also feel that some of the strides I've made as a leader throughout my term on the IEC – whether it comes to public speaking, networking, or other forms of professional correspondence – came from watching and learning these amazing individuals go about their business. I love the way we learn from each other while managing to crack each other up with some silly comment or inside joke every so often.

Being on the IEC also introduced me to a platform that I could never before have envisioned myself being a part of. I now not only represent all HOSA members around the world, but also students interested in healthcare who have not yet discovered HOSA but who would benefit greatly from getting involved in HOSA. One of my main goals is to cater the mission of HOSA to these individuals, to give them the resources they need to find a second home in HOSA and start chasing their healthcare aspirations. When I traveled to various conferences and events, I continually reminded myself why I was in these places and the very people who I was representing – for the first time ever, I felt that I was finally beginning to digest the concept of a “servant leader.”

I also learned some valuable tips and tricks that may go a long way even though I did not expect to learn them. I learned that for domestic flights, I can show up as late as 45 minutes before my flight and still board with time to spare. I learned that Uber drivers can be some of the most interesting people to strike up a spontaneous conversation with. And last but not least, I learned that New York pizza is some of the best pizza I've ever had even though it's amazingly cheap.

But in all seriousness, serving on the IEC has been an unforgettable and unrelenting experience in every positive way. The challenges and opportunities that have come my way have motivated me to seize the moment and uncover some skills that I previously didn't even know I possessed. In short, it's been an incredibly rewarding journey of self-reflection and self-discovery, and I wish it could go on forever.

As I now reflect on all my past experiences and growth, I'm left wondering about what the next challenge offers, about what the next opportunity entails. At last, I think I've come to grasp the notion of a growth mindset and appreciate the meaning that it can bring to my journey. One thing is for certain, though: HOSA – and the very people who gave me this wonderful opportunity to be in HOSA – has become an integral part of my identity, and even after my term ends, I know that the best is still yet to be. HOSA is the gift that keeps on giving, and soon, it will be my turn to give back to this incredible organization and see how our HOSA community can truly go *Beyond All Limits*.

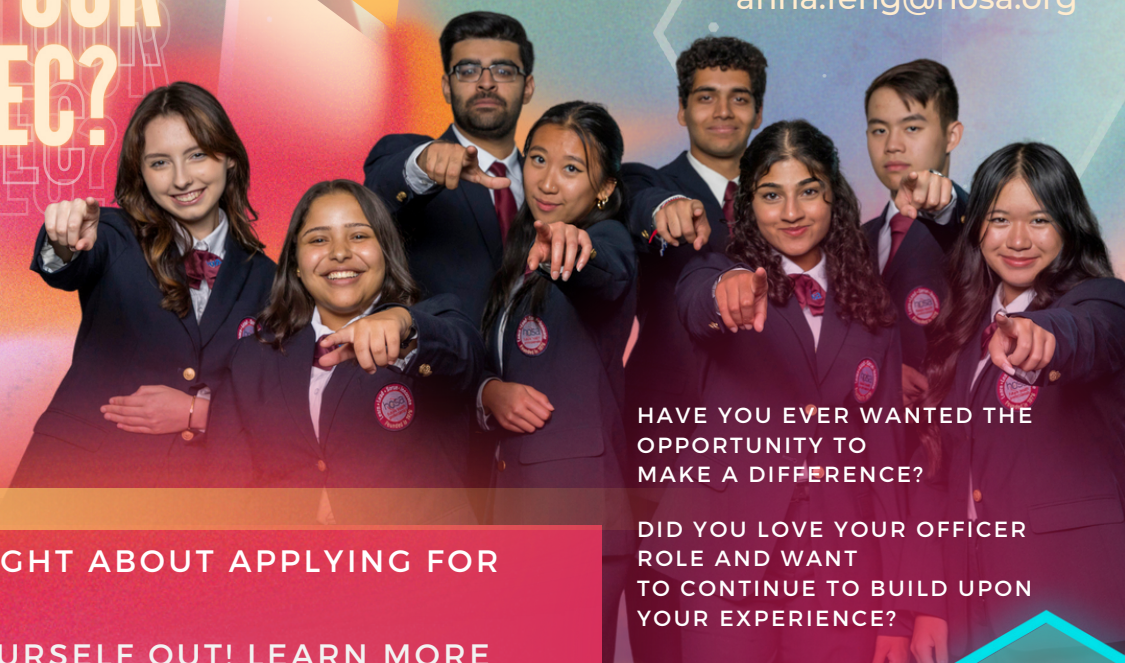
Best wishes,
Corey

APPLICATION
DEADLINE
MAY 15TH 2023

CALLING ALL HOSA
MEMBERS

ARE YOU OUR
NEXT IEC?

QUESTIONS?
Please contact
Anna Feng,
President-Elect at
anna.feng@hosa.org



HAVE YOU EVER THOUGHT ABOUT APPLYING FOR
THE IEC?

DON'T COUNT YOURSELF OUT! LEARN MORE
ABOUT APPLYING FOR THE IEC BELOW

HAVE YOU EVER WANTED THE
OPPORTUNITY TO
MAKE A DIFFERENCE?

DID YOU LOVE YOUR OFFICER
ROLE AND WANT
TO CONTINUE TO BUILD UPON
YOUR EXPERIENCE?

TO APPLY:

REQUEST THE HOSA
INTERNATIONAL
EXECUTIVE COUNCIL
APPLICATION FROM
YOUR HOSA STATE
ADVISOR. ALL
APPLICATION
MATERIALS ARE
SUBMITTED VIA
TALLO.

QUALIFICATIONS

for application to the IEC are
as follows:

- ▶ GPA of 2.0 or higher on a 4-point scale.
- ▶ Junior or Senior in high school
(for application to Secondary Division)
- ▶ Postsecondary/Collegiate member
(for application to PS/C Division)

FOR A COMPLETE OVERVIEW OF ALL
APPLICATION PROCESSES AND
REQUIREMENTS, PLEASE REFER TO
**THE OFFICIAL HOSA IEC
APPLICATION**, RELEASED TO HOSA
STATE ADVISORS

APPLICATION PROCESS

PHASE 1: APPLICATION

Submission of application materials (essay, resume, Introductory Youtube Video, required forms, transcript, etc.) by May 15th 2023 via Tallo.

PHASE 2: WRITTEN EXAMINATION + INTERVIEW

At 2023 ILC, Dallas TX: Written examination on HOSA History, Bylaws, Parliamentary Procedure, etc. Applicants **must** achieve a **75% passing grade** to continue onto the interview.

PHASE 3: CANDIDACY

Campaigning to voting delegates at ILC, presentation of candidate speeches, formal election of 2023-2024 IEC.

My HOSA journey

Tanaya A. Pinkston
Georgia HOSA

I was a child with many aspirations in life, and one of them was to work in the healthcare field. I enjoyed watching shows like *Bones* and *Grey's Anatomy* with my mother. The cases that each episode brought me was something that I couldn't get enough of. As I entered my last few years of elementary school, my mom entered an organization that'll soon become something I call home. She came home one day and told me she would be leaving for Nashville for a conference. I had no idea what she meant by that, but I knew it had something to do with healthcare.

I entered middle school, still interested in healthcare. At the time, my middle school only had one CTSO, and that was TSA. I wasn't a technical person, but the experience of being at a conference and interacting with different people is what I cherished the most. Of course my seventh grade year rolled around, and my middle school added another CTSO, which was Jr. HOSA. I finally got an explanation from my mother on what the organization was. The HOSA organization seemed to be much more fascinating than when I was nine.

My first year in HOSA, I held the position of historian. I enjoyed taking pictures and showing our school what our middle school chapter had to offer. It was also the first year I competed at State Leadership, with my competition being Health Career Preparation. I did not place at State, however, the interview experience shaped how I did my future interviews. Right after State, I knew that I wanted to keep going with this organization. My final year in middle school, I was president of my chapter. Everything started turning that year. I competed in the same competition, after I worked on upgrading

my interviewing skills. I managed to go from eighth place to second place. Despite the year being virtually for me, I was still able to enjoy Internationals, and even managed to place second at Internationals. At this point, I could say that life in HOSA couldn't get better than this, but it did.

Skipping over to my freshman year in high school, HOSA was one of my passions. Encouraging my peers to join if they're interested in healthcare. I didn't feel that it was different from middle school except for the opportunities presented. I felt more relaxed during my

ninth grade year since I didn't have an officer position, and was able to visit more workshops.

Finally came this year, my sophomore year! I held the position of historian once again. I took this opportunity to make video logs of our chapter going to events. During my time as an officer, I was in the midst of applying to be a Georgia HOSA State Officer. It was tedious,

balancing my local officer duties, and my duties as a candidate. However, I made it to State Leadership and started campaigning there. The best part of that campaign process was meeting people who had the same goals and aspirations as you. With the 5 hours of speaking, the recognition session came. I was nervous because it was time to announce the 2033-2024 State Officer team. When I heard my name called, it seemed that my world got brighter. I feel like my HOSA journey never had a slow moment, it just keeps on going. Even after I graduate high school, I'll remember everything that I learned from this organization. I'll forever think about HOSA, even when I made it to the healthcare field.



The Development of Artificial Intelligence Reduce Perioperative Consideration of a more accurate method to quantify blood loss consider diverse

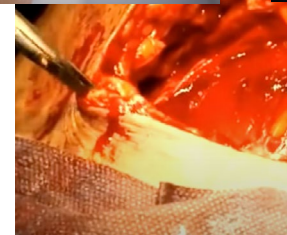
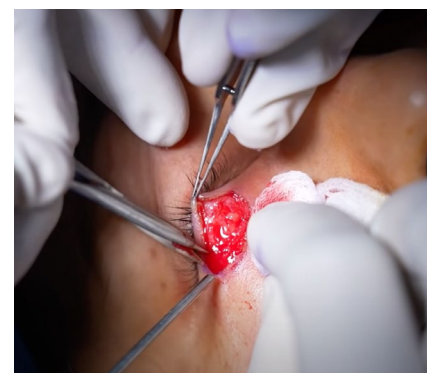
Introduction

Dynamic and accurate estimation of hemoglobin loss is critical for perioperative management. Calculating blood loss during surgery can be challenging because there are several factors that can impact the accuracy of the measurement such as hidden blood loss, blood dilution, fluid shifts, and demographic differences. Despite these challenges, blood loss during surgery is usually estimated through gravimetric analysis, suction canisters, or simple observations, which can offer wide-ranging values. This often leads to poor management with the transfusion of blood products in the perioperative patient, leading to under or overestimation of blood loss. In recent years, technological advancements such as real-time hemoglobin monitoring and feature extraction technology have helped to improve the accuracy of blood loss calculation during surgery, but such methods cannot differentiate biological liquids from one another and do not account for confounding factors such as demographics of the patient, surgical procedure performed, and fluid dynamics. Thus, current practice methods reveal no clear, concise, and economically viable method of measuring intra-operative estimated blood loss in a practical setting.

Methods







This study aimed to evaluate the performance and accuracy of using a novel machine learning model to calculate intraoperative blood loss based on patient data, surgical procedure duration, and a variety of surgical dressing mediums, accounting for gender and demographic disparities to minimize biases. In this study, 128,313 images were retrieved from the publicly available SOCAL dataset. This open-sourced database includes attending and resident surgeons managing surgical hemorrhages with patient demographic data. The anesthesiologist in 250 consecutive patients estimated the blood loss of the patients who underwent various surgical procedures. A densely connected convolutional network algorithm using DenseNet was trained on this dataset and populated into a database linked to a user-friendly interface. The training process was conducted in multiple stages, including data normalization, feature extraction, and model optimization. The trained model was then integrated into a database linked to a user-friendly interface, making it accessible to practitioners in real-world settings. Samples of dye-soaked gauze and bandages were presented to the program with arbitrary patient demographic characteristics in order to evaluate the accuracy and performance of the proposed machine learning model.

Suchi



Results

The study found that the proposed machine learning model, based on the DenseNet algorithm, was effective in quantifying intraoperative blood loss with an accuracy that was statistically significant, with a p-value of less than 0.001. The results of the study suggest that the proposed diagnostic system has the potential to improve the accuracy of blood loss quantification, providing a more accurate method of monitoring and managing intraoperative blood loss. The results of this study demonstrate the potential to improve patient outcomes in the surgical setting.

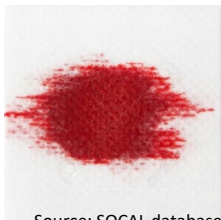
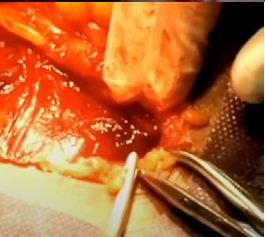
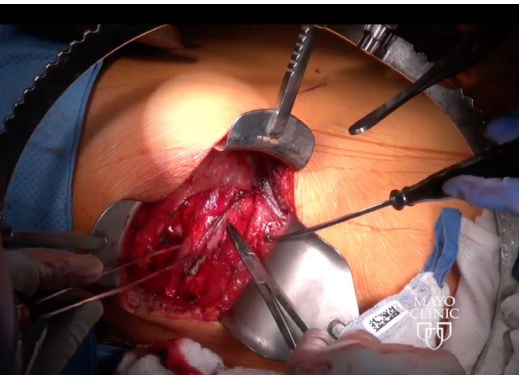
		Percentage of Blood Loss	
		25%	50%
Gauze Size	10x10 cm	 3 mL	 6 mL
	30x30 cm	 25 mL	 50 mL
	45x45 cm	 40 mL	 80 mL

Ali Algadiem, E., Aleisa, A. A., Alsubaie, H. I., Buhlaiqah, N. R., Alga
Gauze Visual Analogue. Trauma monthly, 21(2), e34131. <https://doi.org/10.1002/tra.1311>

Algorithms to Quantify Hemoglobin Loss and Operative Disparities

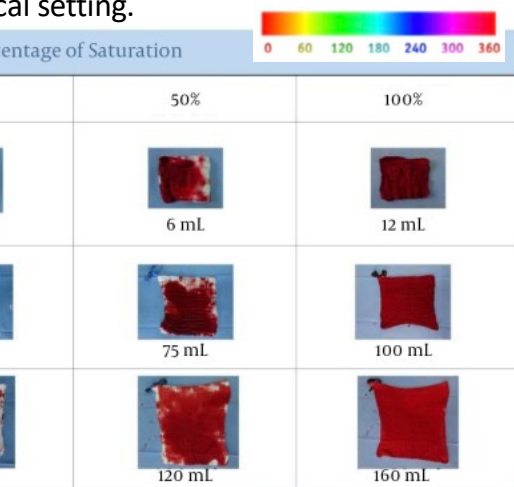
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Patel

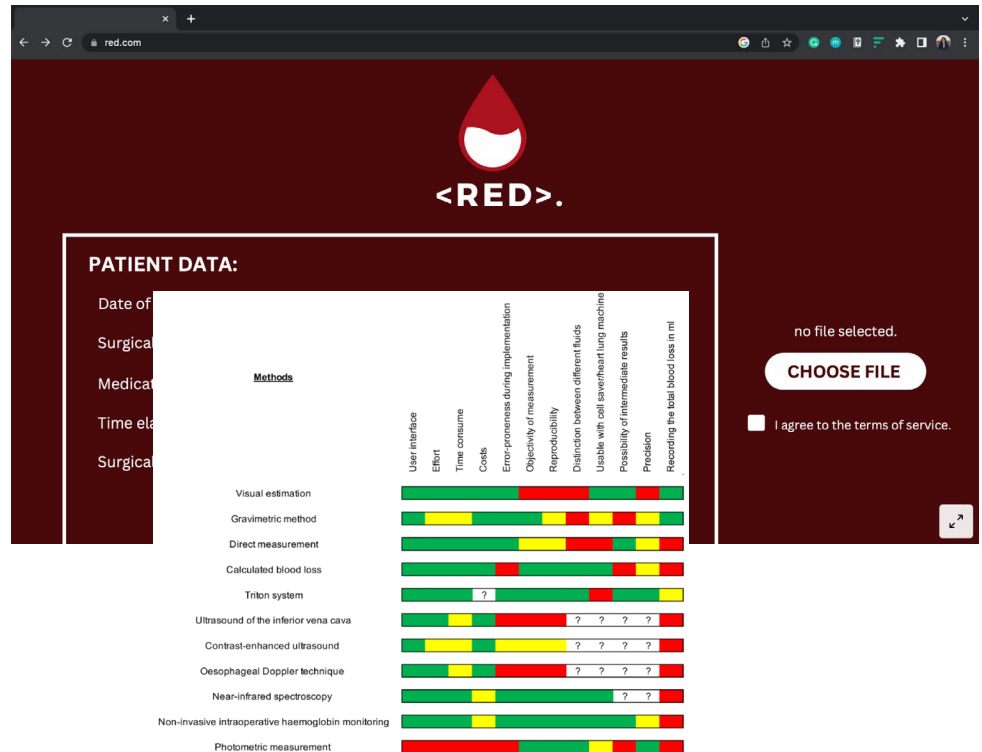


Source: SOCAL database

Machine learning model, which was based
ative in accurately calculating
racy of 86.7%. This high level of
with a p-value of less than 0.001
uggest that the proposed AI-based
revolutionize the way intraoperative
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adeeb, J. B., & Alsneini, H. A. (2016). Blood Loss Estimation Using
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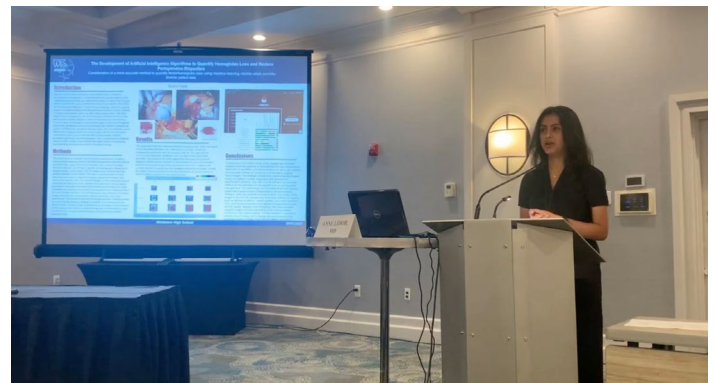
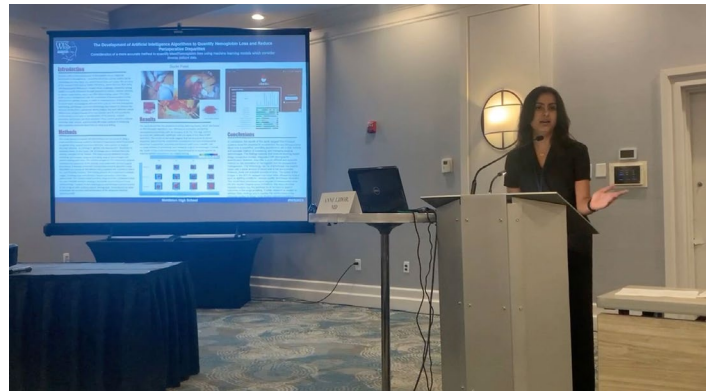


Conclusions

In conclusion, the results of this study suggest that AI-based systems have the potential to revolutionize the way intraoperative blood loss is quantified, providing practitioners with a fast, reliable, and accurate method of monitoring and managing surgical hemorrhages. The findings indicate that machine learning based image recognition models, integrated with demographic quantification features, may offer a more efficient and accurate method for the estimation of hemoglobin loss for perioperative management. This technology can be implemented into trauma cases with a great amount of blood loss in the environment. However, there are potential sources of error. The quality of the images in the SOCAL dataset may have been affected by factors such as lighting conditions, camera quality, and image resolution. This could have introduced some degree of measurement error into the results. Despite some limitations, this study provides valuable insights into the potential for AI to improve patient outcomes in the surgical setting. Further research is needed to validate these findings and to assess the performance of the proposed system in larger, more diverse patient populations.

ABOUT THE AUTHOR

Suchi Patel



In my freshman year, I participated in the “Cultural Diversity and Disparities in Healthcare” event at ILC, which sparked my passion for studying the perioperative disparities faced in surgical care. This interest led me to pursue a research project aimed to bridge socio-scientific barriers in achieving optimal medical care, specifically regarding issues driven by hemoglobin loss. My project uses machine learning, a subsection of artificial intelligence, to better quantify hemoglobin loss in high trauma cases, while accounting for demographic disparities.

I am grateful to have received support from the scientific community and local surgeons in the Tampa area, who have helped beta-test my work. Recently, I was honored to present my preliminary research at the 13th International Women in Surgery Symposium as the only high schooler, where I had the incredible opportunity to showcase my work in front of an esteemed audience of postgraduate researchers and residents, receiving valuable feedback from leaders in the surgical field. My goal is to contribute to the advancement of medicine through innovative technology.

Read The Development of Artificial Intelligence Algorithms to Quantity Hemoglobin Loss and Reduce Perioperative Disparities on the previous page

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