

# 2023

## A GREAT KICKSTART



# SCITSO

CHRONICLES

TRIANNUAL ISSUE

01 Jan - 30 Apr 2023

ISSUE NO. 1

# TRIANNUAL NEWSLETTER



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## ***Mentor's note***

**Lt Gen Narendra Kotwal, SM, VSM**  
**Director and Commandant**  
**AFMC, Pune**

As the commandant of this prestigious College, I am elated to behold the momentous debut of our inaugural newsletter. This auspicious milestone stands as a testament to the resolute industry and unwavering determination exhibited by the cadets of our esteemed Scientific Society (SciSo). We are gratified to have such remarkably gifted and inventive students gracing our college community.

I also extend my heartfelt appreciation to the Officer in charge, Col. Y Uday, whose ceaseless guidance and unwavering motivation have profoundly influenced our cadets, propelling them towards engaging in these captivating endeavours. His steadfast support has played a pivotal role in transforming the concept of this newsletter into a tangible reality. I ardently hope that this compendium will kindle the flames of inspiration within our cadets, urging them to explore their intellectual potential further and showcase their unparalleled achievements to the world.

With this inaugural newsletter, I envision a boundless fount of inspiration and empowerment for our cadets. Each profound article, groundbreaking research endeavour, and artistic masterpiece showcased herein reflects the inexhaustible capacity and exceptional accomplishments of our cadets. I implore these prodigious individuals to persist in pushing the boundaries, challenging conventions, and making indelible imprints within their chosen domains of study. May this compendium stand as a reverent homage to their unwavering dedication and fervour, emboldening them to dare to dream grander, scale loftier pinnacles, and forge an everlasting legacy for generations to come.

## ***Mentor's note***



**Maj Gen D Vivekanand**  
**Director and Commandant**  
**AFMC, Pune**

As the Dean of our esteemed college, I am overjoyed to witness the remarkable passion and enthusiasm displayed by our students in the scientific society. Their relentless commitment and tireless efforts in the pursuit of research and science are truly commendable. In this momentous edition of our newsletter, we have captured the extraordinary achievements that serve as a testament to their exceptional abilities and unwavering drive.

I firmly believe that these budding intellectuals will continue to strive for excellence and make significant contributions in their respective fields. Their passion for scientific exploration and their thirst for knowledge will undoubtedly propel them towards greater heights of success.

I would like to extend my heartfelt appreciation to the students themselves, who have embraced curiosity and fearlessly ventured into uncharted territories of science. Your unwavering determination and relentless pursuit of knowledge inspire us all.

I would also like to express my deepest gratitude to the team behind this outstanding newsletter. Your meticulous efforts, dedication, and attention to detail have truly brought this publication to life. The seamless collaboration and collective spirit have enabled us to showcase the brilliance and achievements of our scientific society students to the world.

Let this newsletter serve as a source of inspiration and motivation for our entire college community. May it ignite the spark of curiosity within each of us and encourage us to explore the limitless possibilities of science. Together, let us continue to foster an environment that nurtures intellectual growth and empowers our students to create a better tomorrow.





## ***Mentor's note***

**Brig J Muthukrishnan, SM, VSM**  
**Sub Dean - Clinical Research**  
**HOD, Dept of Internal Medicine**  
**AFMC, Pune**

### **My Tryst with SciSo-An Ongoing Journey.**

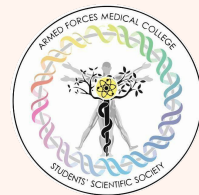
My Journey with the SciSo started during my Undergraduate days in 1989-1991 when things were far simpler, as to its activities. As a bunch of students interested in making presentations, we would get together a few weeks before the Bombay Medical Congress and prepare a symposium. Post that event, we would disperse back into our regular academics and co-curriculars.

As a faculty, in the period 2015-2018, I got to see a more evolved version of SciSo, as its Officer in charge. The cadets, now more tech savvy, were also exposed to a greater number of events where such medical symposia were held. And with Illuminati, came the additional knowledge of organizing a medical conference, to which the cadets were exposed to, so early in their evolution. Amongst the others, Bombay, and Bangalore Medical congress remained the key events in SciSo calendar.

And now as Head of the Department of Internal Medicine, it is so heartening to see how the functioning of SciSo has evolved, and gone beyond the ordinary, by incorporating path-breaking population screening, health surveys, smart innovations and building of healthcare related digital applications. The future of SciSo is in great hands!

I have a dream for SciSo - In a premier academic institution that AFMC is, Students' Scientific Society holds a key position. It brings together a group of like-minded students who have a penchant for study of science, research into areas hitherto fore unknown, and to go beyond what the regular MBBS curriculum has to offer in these aspects. It also must give the students an avenue to develop and present their work both within and outside the institution. And these gifted students, sharpened further by exposure to the activities of the society, would go on to become better doctors, teachers and scientists, something that this college can proudly claim to be its own. Having moved on, to be alumni, these students of Science must continue to remain a student of science, participate in research, present papers, and publish. And they should also continue to remain a part of the SciSo by contributing through personal exchanges, virtual meetings and mentoring the present-day incumbents in the SciSo brainstorming sessions.

# Editor's Note



**W**e the team SciSo are happy to bring the first issue of "SciSo Chronicles".

This newsletter is an endeavour to put forward the various activities of our society. As the Officer in charge of the college's scientific society. I am proud to have the opportunity to work with such bright and talented individuals. Their hard work, passion, and commitment to the scientific field have been instrumental in making this newsletter a reality.

The primary objective of the newsletter is to provide a platform for students to stay informed about research opportunities, academic events, field activities and achievements within our society. By creating a regular newsletter, we aim to foster a sense of community, promote scientific curiosity, and inspire intellectual growth among our cadets. It would also act as a log of the important UG scientific activities of the college.

I hope that you will enjoy reading this newsletter and gain valuable insights into the scientific research done by our very own kilroys.

Furthermore, we look forward to the valuable inputs from the alumni and faculties at AFMC for their continued support to nurture the scientific inquisitiveness among our AFMC's amateur but highly motivated young minds.

I kindly request all faculty members from various departments to forward the undergraduate (UG) research activities conducted at AFMC, under their guidance, for publication in the upcoming newsletter.

**Col Y Uday - Editor in chief**  
**Professor,**  
**Dept of Internal Medicine**  
**AFMC, Pune**



# BOMBAY MEDICAL CONGRESS-23'

We are thrilled to announce that our team emerged as the winners at the Bombay Medical Congress 2023. This highly competitive event featured 16 teams from across India, with only five selected for the final offline presentation. The team's victory was attributed to their highly detailed studies on postpartum depression. The research was based on a comprehensive analysis of the current literature on PPD combined with original data from our study. What set our team apart was the practical, feasible and sustainable solutions we proposed to address the issue. We focused on community based interventions and included recommendations for training healthcare providers and community workers to provide effective support and care.

## Other Teams >

- Lokamanya Tilak Medical College: Chronic Pain
- Terna Medical College: Long Covid and its effects
- MVJ Medical College: Vaping and its roots
- MGM Medical College: Sleep and its Significance



## Winners of Intercollegiate UG Symposia at BOMBAY MEDICAL CONGRESS-23'

From left to right:

FIRST ROW: Elizabeth Philip, Aditya Jayapalan, Gaurav Jalal, Col Y Uday, Aniket Mahajan, Tanveer Mangat, Harshit Kumar Prabhakar  
SECOND ROW: Kishore S, Zoha Fatima, Celine Raphael, Yash Vashisht

## Research presented >

- Prevalence of Postpartum Depression in India and associated risk factors : A Cross Sectional Study.
- Prospective study to study the course of Postpartum depression.
- Evaluation of Knowledge, Attitude, and Practices amongst healthcare professionals regarding Postpartum depression.

## Other Activities >

- A visit to Indian Navy Submarine, **SHANKUSH** and **INS Tabar** was arranged by INHS Ashvini to encourage and motivate the budding cadets to join Armed Forces.
- Basic functioning of these giants were explained in detail by experienced naval officers.
- A brief information regarding the role of a PMO during sailing.

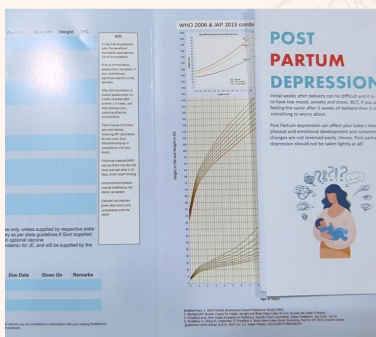
# A VICTORY WELL DESERVED!

*-Team's perspective*

Our symposium consisted of three studies that were well-researched and informative, and I am proud that our team's research part was extensive, setting us apart from the other teams. Our solutions were highly practical and efficient, and the Mcare app was the highlight of our presentation. The app takes care of mothers' mental health through screening, follow-up, and necessary interventions to prevent and overcome postpartum depression. It is gratifying to know that our team's solutions were not just theoretical but practical as well.



We couldn't have done it without Col Y. Uday's constant guidance and encouragement. We can't forget the invaluable support from dept of Psychiatry and Dept of Obstetrics and Gynaecology. Their support throughout the preparation phase was invaluable and made a significant difference in our success.



It was a learning experience that was full of an adrenaline rush, and the whole team was on their toes until the last moment of the presentation. Hearing the judges' perspective that the symposia should be more research and solution-oriented rather than just highlighting the issue was an insight that we can use to improve our team's approach in future competitions. Overall, leading the team to success at the Bombay Medical Conference was a proud moment for me. It was a testament to the hard work, dedication, and commitment of the team towards addressing public health challenges. I am confident that our experience in this conference will help us in future competitions and contribute towards making a positive impact on public health.

*-BMC Team*



# GOOD MENTAL HEALTH IS IN YOUR HANDS

Mcare is here to help you but only if you are willing to help yourself.



Mcare is here to help you!



SCREENING AND FOLLOW UP



FEATURES



FEATURES >

- Timed feeding intervals
- Improved sleep using swaddling and musical therapy
- Vaccination tracker
- Anxiety support system
- Social support group
- Exercise and nature connectedness
- Active surveillance

WANT TO DOWNLOAD THE APP?



Scan to download!

*Developed and designed by  
Gaurav Jalal  
G3 Batch*

# APP DEVELOPMENT



## Summary >

We have developed an application called Mcare for screening and managing postpartum depression. The app addresses the stigma around mental health in our country by offering a private screening process that reduces the reluctance, mothers may feel in talking to a doctor. It also tackles the issue of timing for screening, as our algorithm smartly nullifies screenings done within 5 weeks after delivery and follows up after 14 days.

Based on the EPDS score, our app categorizes women into three zones using colour codes, indicating the severity of depression. Those in the Orange zone are recommended conventional techniques to actively engage and overcome depression. These techniques are derived from authentic research literature and guided by Surg Cmde Kaushik Chatterjee, HOD, Dept of Psychiatry.

Furthermore, our app also helps with baby care by maintaining a record of vaccination status, ensuring better sleep and feeding patterns, and providing audio-based mood enhancement for both mother and child. Mothers who score above 15 on the EPDS are recommended appointments with OBGYN, Psychiatry, and Pediatrics departments. While they can continue to use all the aforementioned features, a psychiatric evaluation is a prerequisite.

In summary, our app serves as a one-stop place for both mother and baby's care, offering screening and support for postpartum depression. With its user-friendly features and evidence-based techniques, Mcare can help mothers overcome postpartum depression and take better care of their own and their baby's well-being and have a potential role for PPD surveillance in future.

The future aspects of this app include the application of Artificial intelligence and machine learning for risk stratification and early intervention to reduce the "unknown burden of this disease". Furthermore, the app will continue to be a source of information for the prevalence of PPD through its screening algorithm, much more than just prevalence the app will also help in analysing the variation of PPD in the general population, all these features will act as an active surveillance system and improve the status of this grave yet overlooked issue.



# DIPS 23'

## -A Developing Indian Physician Scientist Workshop

### About >

The Developing Indian Physician Scientist Workshop (DIPS), 2023 took place at JIPMER, Puducherry from March 17-19, 2023. Organized by Prof. Rakesh Aggarwal, Director of JIPMER, and Dr Anurag Agrawal, Dean of Ashoka University, Sonapat, the event received support from the Department of Biotechnology/Wellcome Trust-India Alliance. The workshop focused on rapidly developing topics in medicine, such as genomics, artificial intelligence, immunology, vaccine technology, and tissue engineering. Renowned physician-scientists specializing in medical science, research, and public health participated in the sessions.

### Reflection >

Throughout the workshop, we had opportunities to interact with the speakers and other participants during breaks and meals, fostering connections and networking. At the end of the workshop, participants received certificates, and I was gifted a token of appreciation for asking relevant and pertinent questions during the sessions. The event gave me new perspectives on pursuing medical science, different types of research, and available research grants and fellowships. I would recommend this workshop to anyone with a scientific interest in medicine.



M/cdt Aakriti Gupta & M/cdt Aditya Jayapalan



M/cdt Pratyusha Davuluri & M/cdt Aditya Jayapalan

### Topic Covered >

- Personal genomics and Precision medicine
- AI in healthcare
- Immunology and vaccine trials for the Rotavirus vaccine
- Approach from basic clinical research to implementation research.

### Eminent Faculty >

- Dr. Vinod Scaria
- Dr. Sridhar Sivasubbu
- Dr. Divleen Jeji
- Dr. Amita Aggarwal
- Dr. Anurag Agrawal

-M/cdt Aditya Jayapalan



# SIMPLE

## Screening Intervention for Myeloma and Prevention of Lifestyle Diseases

This study involved undergraduate medical cadets and aimed to assess the prevalence and early detection of diabetes, hypertension, tumor markers, and lifestyle disorders in rural individuals aged 45 and above. Random sampling ensured a representative sample, and extensive data collection included demographic information, medical histories, physical measurements, blood tests, and validated questionnaires. The study's main objective was to provide valuable insights into the health status of the rural population and identify potential risk factors associated with these conditions. The findings aimed to lay a foundation for developing effective preventive strategies and interventions to improve health outcomes in rural areas. The involvement of undergraduate medical cadets provided them with practical research experience, allowing them to apply their knowledge and gain exposure to real-world challenges in rural research. The study's findings were expected to contribute to existing knowledge on rural health and inform further research in the field. By addressing the specific health needs of the rural population, the study aimed to enhance healthcare strategies and ultimately improve the well-being of individuals residing in rural communities.

### MAGNITUDE>

- **AEA COVERED: 4588 Hectares**
- **NUMBER OF PEOPLE SCREENED: 950**
- **NUMBER OF DAYS: 7 Days**

### CADETS>

- M/cdt Dheeraj Chouhan
- M/cdt Himanshu Motalaya
- M/cdt Celine Raphael
- M/cdt Kishore S.
- M/cdt Roopika Peela
- M/cdt Yash Vashisht



*M/cdt Roopika Peela*





# FROM CITY LIGHTS TO VILLAGE NIGHTS: MY INDELIBLE EXPERIENCE IN KASURDI!

**M/cdt Yash Vashishth**

**H3 Batch**

## Reflection >

As a driven and curious medical undergraduate, I have a growing interest in clinical research and its potential to make a positive impact on public health. So when the opportunity arose to spend several days in Kasurdi village, I jumped at the chance. Nestled in the heart of western Maharashtra, Kasurdi offered a unique window into the everyday lives of its residents - from their customs and traditions to their socioeconomic realities.

It all began when Col Uday informed us that SciSo was conducting a field research project in Kasurdi. At first, I was uncertain about what to expect and worried about missing two weeks of classes and practicals. However, the excellent team management and resource planning orchestrated by Col Uday and Surg Capt Bobdey convinced me to join the project.

On the day of our assembly in Uday sir's office, we were divided into six teams, each consisting of a PG resident, a medical undergraduate, and a BMPT staff member. Despite my initial concerns, I found myself excited to work with such a diverse team.

My experience was truly incredible. I had the privilege of recording the medical history of hundreds of patients, which helped me to develop greater competence and confidence in interacting with them. I also had the opportunity to observe Sq Ldr Rajesh's demonstration of a case of Atrial Regurgitation, which was the cherry on top.

In addition to these clinical skills, I learned proper techniques for taking anthropometric measurements and collecting and storing samples. I gained a deeper understanding of laboratory science, including how samples are centrifuged and cryopreserved. Overall, this experience provided me with valuable insights and knowledge that will undoubtedly be useful in my future medical career.

Overall, the idea was carried out very well, but there were some instances where we faced a shortage of manpower. In particular, a separate team for lab work would have been beneficial, and more personnel could have been deployed to assist with the central team. In hindsight, it would have been beneficial to apply stickers with patient details directly onto the vacutainers and Eppendorf. This would have simplified and streamlined the process, making it more efficient and effective.

Despite these challenges, all the teams tackled every aspect of the project, including sample collection, perform digitalisation and sample processing. We worked tirelessly around the clock, often with just a few hours of sleep per night. Fortunately, our highly competent team enabled us to persevere through the last week of the study.

To my fellow batchmates, I want to share that this study was a tremendous learning experience. It provided us with unique and valuable opportunities to develop various skills and gain practical knowledge at the undergraduate level.

As quoted by Benjamin Franklin, "Tell me and I forget, teach me and I may remember, involve me and I learn." - I believe that in the future, other cadets will seize such opportunities and strive to learn from practical experiences.



# BEYOND THE CLASSROOM: TRANSFORMING LIVES THROUGH FIELD RESEARCH

*M/cdt Roopika Peela*  
*H3 Batch*

## Reflection >

The prospect of joining a brilliant team of doctors for arduous field research, instrumental in actively screening and treating hundreds of destitute and underprivileged members of our society, arose on the 26th of March, right after our victory at the UG symposia during the BMC.

At the outset, we were informed that we would work for 14 consecutive days, from 5 am to 11 pm. Our task involved going door to door in Kasurdi, collecting blood samples, conducting anthropometry, and recording medical histories. In return, we gained invaluable firsthand experience in executing significant field research with a substantial sample size.

Initially apprehensive about joining the research team, my concerns were alleviated by my mother, who assured me that the experience gained would be priceless and that missing two weeks of the third term seemed inconsequential.

On March 31st, the team members were finalized, and we gathered in Col Uday's office, which served as our mission headquarters. We received instructions on efficiently collecting over 1000 samples.

We formed six teams of three, consisting of a PG, a UG, and a medical assistant. Kasurdi was divided into multiple areas called 'basties,' with each team assigned to one. Using the KoboCollect application, we added a socio-demographic dimension to our study by recording household data during each visit. Luckily, our sample collection period from April 2nd to 9th coincided with a week-long holiday at our institute, allowing us to dedicate a week of our lives to the upliftment of the downtrodden without missing any classes.

Our field study officially began on April 2nd at 5:30 am. Despite the warm temperatures, arid climate, and minimal sleep, we remained dedicated under the blazing sun, demonstrating resilience and prioritizing our patients.

Through active involvement in history taking, anthropometry, blood sample collection, and more, we learned firsthand the effort required for massive field research in logistics, analytics, and execution.

I honed my soft skills and Marathi language proficiency while convincing adamant grandmothers and addressing concerns about blood collection. Being responsible for the samples of over 250 villagers instilled a sense of duty towards their health and well-being.

My team leader taught me the value of active listening and empathy in uncovering otherwise inaccessible medical history. I gained a deeper appreciation for pharmacology, witnessing the names of various drugs prescribed for pre-existing comorbidities in clinical cases.

This field research brought about a paradigm shift in my outlook as a medical cadet. The prevalence of lifestyle diseases in rural India, such as diabetes and its complications, surpassed cases of malignancies or infectious diseases. The lack of awareness about these diseases and the devastating effects of tobacco consumption requires immediate attention.

I realized that knowledge combined with compassion is crucial for becoming a good clinician, and lessons are learned from books and caring for a diverse range of patients.

To my fellow medical cadets, I encourage you to embrace enriching field research experiences like this, which help us grasp the gravity of our chosen profession and prioritize qualities that make us good clinicians. Together, we can uplift the crippled to an extent previously unimaginable.

# UNVEILING RURAL REALITIES: INSPIRING FUTURES IN FIELD RESEARCH!

*M/cdt Celine Raphael*  
*H3 Batch*

## Reflection >

Around two weeks ago, a WhatsApp text from my batchmate piqued my interest. The message conveyed to us about the student scientific society conducting field research in rural areas. It was an opportunity laid out to me and I couldn't resist grabbing it. I had mentally prepared myself for the efforts that I was expected to put in the forthcoming week but I knew there would be things that I couldn't prepare myself for beforehand as it was my first experience of fieldwork. As each team consisted of a PG resident, a UG cadet and a BPMT, I was expecting my work to be more of an assistance to the resident. But it was on the field that I realised the equal importance given to us cadets and it inculcated in me a sense of responsibility and authority. It was my first experience of such huge patient interaction and it inspired me to put more effort towards patient care. I now have better clarity towards my goals and my ambition to be a doctor. I'm now a step closer to being a good clinician. It was also an academic boost to learn about various lifestyle disorders that plague my country. I also learned a lot about how to put my theoretical knowledge to practical use, how to triage the patients, and the age groups of patients susceptible to such disorders. I also gained some knowledge of lab tests such as CBC, HbA1C, SPEP and Beta-2-microglobulin and their various diagnostic applications. I have also gained some control over the spoken Marathi. The one drawback I found was the deficiency in manpower. Bringing in more people into the study would have made the study more efficient in terms of time and productivity. Apart from that, the whole experience was worth every effort put in, and I'm sure no knowledge gained would go unused in the future. My message to other cadets would be to actively participate in such projects as they add a lot more value to your profession as a doctor than the rote learning of books.





# EXPLORING HEALTH IN RURAL AREAS: EMPOWERING CADETS, TRANSFORMING COMMUNITIES!

*M/cdt Dheeraj Chouhan*

*G3 Batch*

## Reflection >

A message came in my batch group mentioning this project, and I decided to participate since I had never been involved in this type of project before and there were no classes that week due to college week celebrations, so it wouldn't affect my studies. My expectations were not too high; I simply hoped to gain some experience in fieldwork, teamwork, and the process of initiating a large-scale study. Fortunately, my experience during this project turned out to be very good. I learned valuable skills such as interacting with people, explaining the project, and collecting data. Additionally, I gained knowledge on various tasks like blood collection, anthropometry, medical history taking, documentation, sample cold chain management, and centrifugation. This project has changed my perspective on my MBBS journey, particularly regarding the widespread prevalence of diabetes, anemia, and hypertension in India, and the lack of awareness among many severely affected individuals. I also discovered the importance of various medications for these conditions, which I had studied during my 2nd MBBS but now realize how much I had overlooked at that time. The project went smoothly, with all team members giving their utmost effort. However, if we had a few more participants, it would have been even easier and less time-consuming. The team worked tirelessly throughout the day in Kasurdi and even conducted sample processing and collection at night. I believe that more cadets should volunteer for such studies, as they provide valuable field research experience and the opportunity to encounter real clinical cases and understand disease prevalence.







# THE POWER OF PRACTICAL LEARNING: LESSONS FROM THE KASURDI PROJECT

*M/cdt Himanshu Motalaya*

*G3 Batch*

## Reflection >

The notification of this project caught my attention, and I eagerly volunteered to be a part of it.

Initially, my expectation was to gain exposure to the practical aspects of field research and to learn phlebotomy. I can now confidently say that I have acquired a sufficient amount of experience in blood collection.

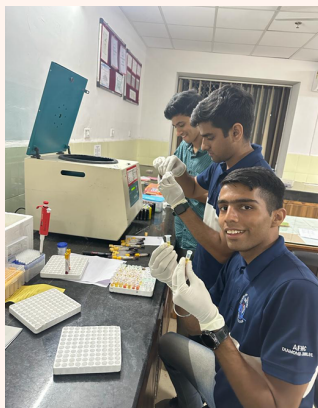
Reflecting on my experience during the study, I realized the challenges and obstacles faced while collecting data and samples in the field. Unforeseen circumstances such as dog bites, villagers evading our medical teams, and the relentless heat posed significant difficulties. However, as the study progressed, we encountered various problems and found ways to overcome them, like brainstorming to maintain sample sequence and organization throughout the procedures.

The study taught me the invaluable lesson that competent and skilled human resources are more crucial than material resources for the successful completion of a project or study. Even in the absence of adequate resources and unfavourable circumstances, quality human resources can overcome any obstacle. It also pushed me beyond my limits and comfort zone, transforming my approach to medical school coursework and inspiring me to pursue further research.

I firmly believe that practical experience holds a far greater impact than theoretical lectures. Interacting with the villagers and taking their medical history during the study made me realize the true significance and high prevalence of non-communicable diseases (NCDs). It gave me a deeper understanding of the weight these ailments carry.

While the study was well-managed in most aspects, there was a shortage of manpower. Having a separate team for lab work and deploying more people in the central team for logistics would have been beneficial. However, despite the challenges, our competent human resources allowed us to navigate through the final week. The breaks provided were crucial in maintaining efficiency and effectiveness, especially considering the scorching heat. I commend the entire team for their hard work and dedication to the study.

To my fellow cadets, I want to emphasize that the last week was a tremendous learning experience in various aspects. Acquiring these skills and knowledge at the undergraduate level holds immense importance and uniqueness. As this project was voluntary, I encourage ambitious individuals interested in research projects to seize such opportunities and make the most of them.





# UNVEILING THE KASURDI PROJECT: EMBRACING NEW FRONTIERS

**M/cdt Kishore Subburaj**  
**G3 Batch**

## Reflection >

The Kasurdi project, led by the Department of Internal Medicine and the Department of Community Medicine, was an exhilarating journey that I reflect upon in the following paragraph.

When I joined the project, my primary aim was to engage with the rural population. However, I had reservations about the time commitment, missing college week, and my personal health limitations.

During the study, I realized that not everything goes as planned, and adaptability is key. Unexpected incidents like dog bites were a part of the experience. The field trips provided valuable professional and life lessons, especially for someone like me in the military who is often confined to campus.

The study enhanced my academic knowledge, exposing me to diverse clinical cases and practical skills such as venipuncture, anthropometric measurement, and sample management. I also formed strong bonds with my team members, fellow cadets, and seniors.

Learning the Marathi language proved beneficial for my medical school journey in Maharashtra. Witnessing the impact of social factors on patients and understanding their perspectives on blood collection left a lasting impression.

To improve future projects, standardizing questions, increasing the workforce, better timing of field visits, and improving sample management are crucial. My message to fellow cadets is to embrace field research at least once, as every patient is unique and practical knowledge complements theoretical learning.





M/cdt Armish Asija  
Guide: Lt Col John

### Research > **Dept of Anesthesiology**

A study of correlation between Neutrophil lymphocyte ratio and length of ICU stay in post operative patients undergoing major surgeries in a tertiary care hospital.

We investigated the prognostic value of NLR (Neutrophil Lymphocyte Ratio) in 25 surgical ICU patients (9 females and 16 males) as a marker of systemic inflammation. The average age of patients was  $57.04 \pm 15.78$  years. Length of stay in the ICU was used as a measure of physiological stress severity. Results showed a significant positive correlation between ICU stay length and average NLR during their stay (p-value 0.026711, significant). Clinicians can use NLR to assess prognosis and detect early postoperative complications, facilitating proper patient evaluation and overall health management.

### Research > **Dept of Biochemistry**

Title: Serum Stability of routine biochemical parameters in a healthy population

This study was performed on healthy individuals with a sample size of 51. The main objective was to understand the stability of various biochemical analytes under different temperature conditions i.e room temperature and 4 degrees Celsius for variable periods of time. Statistical analysis was performed using GradPad Prism Version 9 software and multiple comparisons were done. Multiple comparisons showed significant changes in total protein, potassium, sodium and calcium values with that of baseline values.

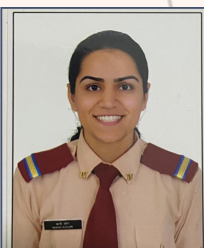


M/cdt Amrinder Singh  
Guide:  
Wg cdr Ashwini kumar

### Research > **Dept of Internal Medicine**

Pain and Shoulder dysfunction in patients of Diabetes Mellitus type 2- a cross-sectional observational study at a tertiary care hospital

Frozen shoulder, a complication in Type 2 Diabetes Mellitus, causes pain, dysfunction, and restricted shoulder joint movement. A study using the m-UCLA shoulder rating scale and goniometry showed 60% of patients had pain, 51% had dysfunction, and 58% had restricted ROM, with early Abduction impairment. The pain was significantly correlated with diabetes duration and Neuropathy. Over 50% of patients with micro/macrovascular complications had shoulder complications. Diabetes duration is a significant factor. The study found a high prevalence of hypertension and Statin medication use.



M/cdt Bani Kaur  
Guide: Brig AS Menon



M/cdt Akshitha Thatikonda  
Guide: Col Indramani P

### Research > Dept of Respiratory Medicine

#### A cross sectional observation study on uncontrolled bronchial asthma and inhaler technique among out patients in a tertiary care centre in western Maharashtra

Asthma is a disease that can significantly impact daily activities if not properly controlled. Evaluating the prevalence of uncontrolled asthma and incorrect inhaler technique can help identify a potentially correctable cause of uncontrolled asthma. The study was conducted at a tertiary care centre in Western Maharashtra with a sample size of 80, these patients were assessed based on the ACT score. We found that 41.25% of patients had uncontrolled asthma as per ACT, and 48.5% of patients with not well-controlled asthma were unaware of the proper inhaler technique. Good inhaler technique was associated with well-controlled symptoms, highlighting the importance of patient education in asthma management. Physicians play a vital role in educating patients on inhaler technique, and other factors also influence asthma control.

### Research > Dept of Physiology

#### Title: High-resolution oesophageal manometric findings in elderly Indians reporting with dysphagia a cross sectional study.

Dysphagia can result from various oesophageal diseases such as achalasia, nutcracker oesophagus, distal oesophageal spasm, jackhammer oesophagus, and ageing. High-resolution manometry (HRM) is the gold standard for evaluating dysphagia, providing a detailed measurement and classification of various oesophageal metrics during a swallow. Conducting a detailed functional evaluation of dysphagia using HRM in elderly Indians can help understand the effect of ageing on oesophageal motor activity, including basal LOS pressures and LOS relaxation behaviour. This study aimed to describe the HRM findings in greater detail in elderly Indian patients experiencing dysphagia.



M/cdt Aditya Jayapalan  
Guide:  
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Guide:  
Maj Mayank Ghedia

### Research > Dept of Microbiology

#### Title: To study the microbial load and spectrum of used face-masks (cotton/surgical) and the effect of UV light on microbial load

With an enormous increase in the use of face masks, as they are the primary line of defence in the global battle against severe acute respiratory syndrome coronavirus 2, the study aims at finding the consequences of regular mask use in the general population, if any, with the assessment of the effectiveness of UVGI to decontaminate the masks. 2 samples from masks from 40 UG students of AFMC were processed, with one undergoing UVGI for comparison of microbial load. The study is one of the first studies to be carried out in an Indian setting to understand the microbiological contamination of masks and the risks involved in prolonged wear.



sno.	Title	Cadet	Dept	Faculty
1.	<i>Title: Awareness and acceptance of eSanjeevani portal among parents of children attending pediatric OPD in a tertiary care hospital against the background of COVID-19 pandemic.</i>	<i>M/cdt Deepanshu Gupta (E3 batch)</i>	<i>Dept of Pediatrics</i>	<i>Col A R Rajan</i>
2.	<i>Comparison of whole blood potentiometry using Arterial Blood Gas Analyser at Intensive Care Unit with laboratory-based serum sodium and potassium estimation in critically ill patients.</i>	<i>M/cdt Saurabh Singh Bisht</i>	<i>Dept of Anesthesiology</i>	<i>Col Shamik Paul</i>
3.	<i>A questionnaire based patient satisfaction survey on doctor patient communication at a tertiary care teaching hospital</i>	<i>M/cdt Abhinav Mani Tiwari</i>	<i>Dept of Pharmacology</i>	<i>Dr Druga prasad Bodepalli</i>
4.	<i>Evaluation of bacterial spectrum in pre- and post-operative urine and intraoperative stone of patients undergoing percutaneous nephrolithotomy</i>	<i>M/cdt Anurag Bharti</i>	<i>Dept of Microbiology</i>	<i>Lt Col Kundan Tandel</i>
5.	<i>An observational study of dermoscopic findings in acral manifestations of autoimmune connective tissue disorders</i>	<i>M/cdt Ritwik Johari</i>	<i>Dept of Dermatology</i>	<i>Lt Col Lekshmi Priya</i>
6.	<i>Enigma of socio-behavioral changes in sero-discordant couples - a decades Perspective</i>	<i>M/cdt Tushar Sharma</i>	<i>Dept of Internal Medicine</i>	<i>Wg Cdr Rohit Vashisht</i>
7.	<i>Parental assessment of neurodevelopmental delay in early preterm NICU graduates using a screening questionnaire</i>	<i>M/cdt Lakshita Yadav</i>	<i>Dept of Pediatrics</i>	<i>Maj Arjun Kurup</i>

# Thank you...

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Attention medical cadets! We cordially invite you to contribute your scientific work to our Tri-annually magazine/newsletter. Share your valuable insights, research findings, and discoveries with our esteemed readership. Join us in fostering knowledge exchange and collaboration within the scientific community.

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