



# ICHTR 2019

Interdisciplinary Conference on  
Health and Technical Research

Manipal, India

Souvenir & Abstracts

“Investigación for the Progress of Science”



**MAHE-SRF**

RESEARCH IS CREATING NEW KNOWLEDGE



**2019 ICHTR  
CONFERENCE PROCEEDINGS**



## TABLE OF CONTENTS

Preface	1
<b>Program</b>	3
<b>Invited Speakers Abstracts</b>	6
<b>Abstracts- Basic Science</b>	16
• Life Sciences	16
• Chemistry	22
• Physics	22
<b>Abstracts- Health Science</b>	29
• Allied Health Sciences	29
• Dental Sciences	41
• Medicine	45
• Nursing	65
• Pharmaceutical Sciences	66
<b>Abstracts- Management Science</b>	71
• Banking and Commerce	71
• Humanities and Social Sciences	72
• Management	73
• Mass Communication	76
<b>Abstracts- Technical Science</b>	78
• Architecture and Design	78
• Engineering and Technology	85
<b>Organizers</b>	96



## **PREFACE**

Dear Delegate:

This year's "Interdisciplinary Conference on Healthcare and Technical Research (ICHTR)", held during 29th October – 31st October 2019 at Marena Stadium, Attavar, Mangalore was organized by the Manipal Academy of Higher Education Student Research Forum (MAHE-SRF), which is functional under the aegis of Directorate of Research (DoR), Manipal academy of higher education (MAHE) Manipal, along with Kasturba Medical College (KMC) and Manipal College of Dental Sciences (MCOADS), Mangalore. This conference aimed to provide an eminent platform to the participants from various disciplines to present their research data and to be a part of the interactive sessions with the peers of the related fields. "ICHTR-2019" aimed to ignite the minds of researchers to come up with innovative ideas towards the improvement in the quality of healthcare and technology. The conference featured guest-lectures and panel discussions involving renowned researchers in healthcare and technical fields from around the globe. The conference brought together the experienced minds with the young enthusiastic students and the experienced communities of a multitude of interlinked domains – medicine and health sciences, basic and applied sciences, engineering sciences, management sciences, and related areas. In the current era, there is a necessity for researchers from various fields to come up together sharing their novel ideas, innovations, and experiences.

We hope you benefited from interactions with peers as well as leaders; and made use of this opportunity to network. If you have any suggestions for the next year's conference based on your experience in this one, please do let us know.

Thank you for attending the conference and helping us make it a successful and enjoyable event.

**Elton Dylan Nazareth.**, Convener, Vice-President MAHE-SRF



# PROGRAM

29<sup>th</sup> October, 2019

Venue: Marena sports complex, Mangalore

Time/Hall number	Hall 1	Hall 3	Hall 2	Time/Hall number
9:30 - 10:15	<p style="text-align: center;"><b>Plenary Talk - 1</b>  <b>Prof. Vinod Pavarala</b>  <i>UNESCO Chair on Community Media</i>  <i>Founder - Community Radio Forum of India</i></p>			9:30 - 10:15
10:15 - 10:45	<b>Inauguration</b>			10:15 - 10:45
10:45 - 11:00	<b>Tea break</b>			10:45 - 11:00
11:00 - 11:40	<p style="text-align: center;"><b>Scientific talk - 1</b>  <b>Dr. Amitha Ranatua</b>  <b>Webinar - UK</b>  <i>Senior Clinical Lecturer</i>  <i>Barts and the London</i>  <i>School of Medicine and</i>  <i>Dentistry</i>  <i>Chair of UK Council</i>  <i>of Dental Teachers of</i>  <i>Professionalism, United</i>  <i>Kingdom</i>  <i>"Ethics for involving</i>  <i>patients in research"</i></p>		<p style="text-align: center;"><b>Scientific talk - 2</b>  <b>Mr. Vinod</b>  <b>Madhavan</b>  <i>Associate Professor</i>  <i>Dean</i>  <i>Administration</i>  <i>TAPMI, Manipal</i>  <i>"Marketing your</i>  <i>research ideas and</i>  <i>contributions"</i></p>	11:00 - 11:40
11:40 - 1:00	<p style="text-align: center;"><b>Oral presentation</b>  <i>(Health Science)</i></p>		<p style="text-align: center;"><b>Oral presentation</b>  <i>(Management</i>  <i>Science)</i></p>	11:40 - 1:00
1:00 - 2:00	<b>Lunch break</b> <b>Poster presentation evaluation - Health Science and</b> <b>Management Science (Hall 2)</b>			1:00 - 2:00
2:00 - 4:00	<p style="text-align: center;"><b>Mentoring</b>  <b>Dr. V S Venkatesan</b>  <i>Professor Biomedical Engineering</i>  <i>Manipal Institute of Technology</i>  <i>TMA Pai Chair in Medical Devices</i>  <i>"Evolution from an undergrad to a full-grown</i>  <i>researcher"</i></p>			2:00 - 4:00
4:00 - 4:15	<b>Hi - Tea</b>			4:00 - 4:15

# PROGRAM

30th October, 2019

Venue: Marena sports complex, Mangalore

Time/Hall number	Hall 1	Hall 3	Hall 2	Time/Hall number
9:30 – 10:30	<p style="text-align: center;"><b>Cross connect session</b>  <b>Mr. Elton Dylan Nazareth</b>  <i>Vice President – MAHESRF, Convenor ICHTR 2019</i>  <i>“Introduction to various interdisciplinary branches!”</i></p>			9:30 – 10:30
10:30 – 10:45	<b>Tea break</b>			10:30 – 10:45
11:00 – 11:40	<p style="text-align: center;"><b>Scientific talk</b>  <b>- 3</b>  <b>Dr. Arun Mohan Isloor</b>  <i>Professor and HOD – Chemistry NITK, Surathkal</i>  <i>Sir CV Raman Young Scientist Award 2018</i>  <i>“Chemistry for solving healthcare issues”</i></p>		<p style="text-align: center;"><b>Scientific talk</b>  <b>- 4</b>  <b>Dr. K V Gangadharan</b>  <i>Professor – Mechanical Engineering NITK, Surathkal</i>  <i>“Making use of Engineers”</i></p>	11:00 – 11:40
11:40 – 1:00	<p style="text-align: center;"><b>Oral presentations</b>  <i>(Basic Science)</i></p>		<p style="text-align: center;"><b>Oral presentations</b>  <i>(Technical Science)</i></p>	11:40 – 1:00
1:00 – 2:00	<p><b>Lunch break</b>  <b>Poster presentation evaluation – Health Science, Technical Science and Management science (Hall 2)</b></p>			1:00 – 2:00
2:00 – 4:00	<p style="text-align: center;"><b>Mentoring</b>  <b>Dr Manesh Thomas</b>  <i>CEO – Manipal + Government of Karnataka Bioincubator Manipal</i>  <i>“Making use of Engineers”</i></p>			2:00 – 4:00
4:00 – 4:15	<b>Tea break</b>			4:00 – 4:15

# PROGRAM

31st October, 2019

Venue: Marena sports complex, Mangalore

Time/Hall number	Hall 1	Hall 3	Hall 2	Time/Hall number
9:30 – 10:15	<p>Scientific talk – 5  <b>Dr. Dinesh Upadhyay</b>  <i>Assistant Professor</i>  <i>Department of Anatomy,</i>  <i>Kasturba Medical College, Manipal</i>  <i>“The path to discover innovation in health science ”</i></p>		<p>Scientific talk – 6  <b>Dr. Girish Bharadwaj</b>  <i>“Bridgeman of India”</i>  <i>2017 Padma Shri Recipient</i>  <i>“Challenging construction of suspension bridges, training and development in rural connectivity”</i></p>	9:30 – 10:15
10:15 – 10:45	<p>Oral presentations  <i>(Health Science)</i></p>		<p>Oral presentations  <i>(Technical Science, Architecture)</i></p>	10:15 – 10:45
10:45 – 11:00	<b>Tea break</b>			10:45 – 11:00
11:00 – 12:00	<p>Plenary Talk – 3  <b>Dr. Ullas Karanth</b>  <i>Senior Conservation Scientist</i>  <i>Wildlife Conservation Society, New York</i>  <i>Director – Center for Wildlife Studies</i>  <i>2012 Padma Shri Recipient</i></p>			11:00 – 12:00
12:00 – 1:00	<b>Valedictory Function</b>			12:00 – 1:00

## ABSTRACTS: INVITED SPEAKERS

### Keynote Speaker 01

Community Media as Communication Technologies of the People



**Prof. Vinod Pavarala**

UNESCO Chair on Community Media, University of Hyderabad,  
India.

Starting with brief personal narratives of four community media practitioners from South Asia and Africa, the talk explains how community media are communication technologies that enable the poor and the marginalized to articulate their concerns and interests through their own voices. Theoretically, the presentation then goes on to identify three interrelated conceptual entry points to understanding community media, viz., globalization; development; and, public sphere/civil society. Against the homogenizing influences of globalized media, community media posit an alternative that renders the media landscape more pluralistic and diverse. By providing universal access, community media, such as community radio and participatory video, can be seen as a platform for excluded voices. In terms of development and social change, community media are modes of participatory communication that move away from the historically top-down pedagogical approach of state-sponsored development communication. In contrast, community media operate on the principle of horizontal communication with focus on empowerment and self-reliance. The talk makes the point that community media are embedded in processes that enable ordinary people to *use* the media rather than be *used* by the media. Such processes lead to collective problem identification, decision-making, and community-based implementations of solutions to development issues. Community media also address the

complex issue of ‘voice poverty’, which may be defined as “the inability of people to influence the decisions that affect their lives, and the right to participate in that decision making” (Jo Tacchi). The human capacity to give account of themselves and of their place in the world cannot be undermined, although there are powerful institutions that constantly strive to deny people that right. Finally, the presentation emphasized on certain processes, practices, and policies that are essential for the emergence and sustainability of community media. These are: processes that allow people to speak for and about themselves and their issues; practices that enables individuals, organizations, and communities to learn to use the media to narrative their experiences; and policies that provide an enabling framework for multiple voices to flourish, especially of those at the margins of society.

## **Keynote Speaker 02**

Conservation Science at Macro-ecological Scales



### **Dr. Ullas Karanth**

Senior Conservation Scientist, Wildlife Conservation Society,  
New York. Director – Center for Wildlife Studies. 2012 Padma  
Shri Recipient

I talked about my personal engagement with wildlife conservation over the past 50 years in India. The presentation will cover, how and why my boyhood passion for ‘tiger watching’ led to a professional career as a wildlife biologist and conservation advocate. It will include glimpses of how I studied tigers for three decades, and, what I found out about their conservation needs in the context of changing human impacts, aspirations and traditions. Core of my talk demonstrated how sound science helped me to develop effective conservation interventions involving multiple partners to address conservation challenges rooted in both ecology and social context. The concluding part of my talk will explore the key issues that need urgent resolution: How we can accommodate survival needs of threatened species, while also addressing social and economic aspirations of millions of people. Community Media as Communication Technologies of the People

## Scientific Talk- 01

### Introduction to Patient and Public Involvement (PPI) in research



**Dr. Amitha Ranauta**

Senior Clinical Lecturer, Barts and London School, UK

Public Involvement is defined by INVOLVE, the national advisory group in the United Kingdom, that supports public involvement, as “research being carried out ‘with’ or ‘by’ members of the public rather than ‘to’, ‘about’ or ‘for’

them (INVOLVE, 2013). The value of Patient and Public Involvement is to bring an “expert” insight into individual research projects because of their experiences of living with a disease or using health services. The experience of these contributors enables researchers to access a fuller understanding of the condition being studied and may help generate research which is more meaningful. PPI also serves to challenge research that may be driven by the interests of researchers or pharmaceutical companies. Involving PPI in research allows different types of knowledge to be valued and to enhance research. There is an ethical obligation to involve patient and public in research because those who research is for should have a say in how it is done.

INVOLVE. 2013. *Exploring the impact of public involvement on the quality of research: examples* [Online]. Available: <http://www.invo.org.uk/wp-content/uploads/2013/08/invoNETexamples2013.pdf> [Accessed 6th November 2019].

## Scientific Talk- 02

### Networking in Research- Marketing your ideas and contribution



**Mr. Vinod Madhavan**

Associate Professor, Dean Administration, TAPMI, Manipal, India

The research community grows in strength by sharing knowledge and building useful networks. Networking helps researchers to reach out to the community and build consensus through peer reviewed feedback. One of the most important component of research is the validation of ideas and contribution to the research community. Most researchers prefer to work in collaboration with their own fraternity thereby limiting interdisciplinary research. The world is now looking forward to insights from interdisciplinary studies. Some of the key networking activities for researchers involve active participation in seminars and workshops apart from conferences. Find raising events are also a major networking event. Hosting round table discussions is also beneficial for ideation and validating research projects. Obtaining funding for a research project and publishing the research findings are a mark of acceptance and success. It is hence important to be persistent in networking with fellow researchers.

## Scientific Talk- 03

### Chemistry for Solving Healthcare Issues



**Dr. Arun Mohan Isloor**

Professor and Head of the Department, Department of Chemistry, National Institute of Technology Karnataka (NITK), Surathkal, India

Medicinal chemistry and pharmaceutical chemistry are disciplines at the intersection of chemistry, especially synthetic organic chemistry, and pharmacology and various other biological specialties, where they are

involved with design, chemical synthesis and development for market of pharmaceutical agents, or bio-active molecules (drugs). Present talk highlights about synthesis, characterization and pharmacological activities of few of the important broad classes of small organic molecules such as Pyrazoles, Imidazoles and Quinolines. Haemodialysis, commonly called kidney dialysis or simply dialysis, is a process of purifying the blood of a person whose kidneys are not working normally. This type of dialysis achieves the extracorporeal removal of waste products such as creatinine and urea and free water from the blood when the kidneys are in a state of kidney failure. Hemodialysis is one of three renal replacement therapies (the other two being kidney transplant and peritoneal dialysis). An alternative method for extracorporeal separation of blood components such as plasma or cells is apheresis. Haemodialysis, requires a semipermeable polymer membrane to separate blood from dialysate solution. The nature and properties of this membrane determines the nature of the 'traffic' between the blood and dialysate. In this sense, the nature of the polymer membrane determines the size of molecules move from one compartment to the other. Apart from this, the nature of the polymer material and the membrane influences on the biological response of the patient both in terms of what is or is not removed by the dialysis process and by way of the reaction to the biocompatibility of the membrane. Commercially available haemodialysis cartridges costs anywhere around INR 1800 (around 27 USD) per unit. This talk also explores about preparation of dialysis membrane and also challenges in developing such low cost cartridges.

## **Scientific Talk- 04**

### **Making use of Engineers!**



**Prof. K. V. Gangadharan**

Professor, Mechanical Engineering , Centre for System Design , NITK Surathkal, India.

Medical professionals – Doctors are end uses of cutting edge technology like all imaging devices like MRI, CT Scan, X Rays and Very complex robotic surgery etc. But the designer (the Engineers) and the end users (Doctors)

are presently almost disconnected. The talk is an attempt to motivate Medical student/faculty to explore possibilities to work with Engineers / engineering students to be part of the solution rather than the problem.

The simple examples are used to high light the design thinking and end user perspectives for product development. Initial hurdles that could be faced in such collaboration and possible way out are explained. Few activities where KMC doctors where involved in designing devices / solutions are explained. Patented filed in medical device through NITK – KMC collaboration is presented to narrate even simple problem statement could lead to a potential patent and a product.

## **Scientific Talk- 05**

### **The path to discover innovation in health science.**



#### **Dr. Dinesh Upadhya**

Associate Professor, Centre for Molecular Neurosciences, Kasturba Medical College (KMC), Manipal, Karnataka, India

Human beings are facing with innumerable issues in mental, physical and social health. Lack of access to quality and affordable health care facilities is the major cause for inequalities in global health care. In developing countries like India, only mainstream people are getting the major health care benefits. There is an urgent need for ultra-low-cost innovations in the area of diagnostics, prognostics, therapeutics, medical devices, supportive products, etc. For example, in India, medical devices alone has a market of \$5.2 billion, where only 30% of the market is occupied by domestic products. Apart from contributing to healthcare requirement, innovations in these areas could generate a lot of jobs and revenues. More than 100 incubation centers around the country are providing essential infrastructure facilities required for innovation and incubation. Apart from helping in prototype development of the concept, these incubators also help to refine, test and validate the product. Funding support for innovations is always available from DBT-BIRAC, DST and CSIR apart from several non-governmental organizations and industrial

partners. Innovations are generally borne of necessity and every researcher should work to develop an innovation in their field so that, health science will be greatly benefited in the coming years.

## Scientific Talk- 06

### Challenging Construction of Suspension Footbridges



**Dr. Girish Bharadwaj**

“Bridgeman of India” 2017 Padma Shri Recipient

Ideas generate as solutions to problems. You know, the necessity is the mother of invention. The same thing happened in my case. I, basically a Mechanical Engineer, turned to become a Suspension foot bridge maker. I don't know in which branch you put it. For me, it is a hybrid of mechanical, civil and social engineering. Coming from a farmer's family my initial work after graduation in 1973, was with repair of irrigation pump sets, which was the necessity in the region. Side by side, I added fabrication works, later leading to making of Gobar gas plant, which was another need. First 15 years was just struggling for existence, then earning profits, slowly slowly clearing the bank loans and adding assets. In 1989, there came a request to build a Suspension Foot Bridge across Payashwini river. I refused . I did not have any knowledge of bridges. It is Civil Engineering. They requested as they had a lot of faith in me, they said you “CAN” do it. You “CAN” so I studied about Suspension Bridge concept, made some imagination of components, method of construction and did it. Friends, success comes in “CAN”s. if one thinks I can't, he will not go further. After 2-3years, when our bridge proved its salient role in rural development, our journey of bridge started.

## Mentoring Session- 01

### Evolution from an undergrad to a full-grown researcher



#### **Dr. V S Venkatesan**

Professor, Biomedical Engineering, Manipal Institute of Technology (MIT), Manipal, Karnataka, India

The session was on the evolution of research as one progresses from an undergraduate to a post Ph D faculty level and writing major grants as a research leader. Starting from the view that Research is an instinct and research is done by animals and insects also, the talk progressed through, the necessity for research training, what the Ph D or research training can achieve and what it will not. Using the analogy of a driving school, the author was of the view that research training only hones the skills and qualities such as commitment and innate curiosity need to be cultivated by the individual. Moving on to the theme of 'Research Evolution from an Undergraduate to a Research Leader', the speaker discussed the characteristics of researchers at different stages, the mistakes committed and the problems they normally encountered. Focusing on Ph D work, the speaker elaborated on the ingredients of the good PhD and need for knowledge and commitment from both the student and the supervisor. It was emphasized that Ph D is not an end in itself but is a beginning to a research career. Just as in driving, though all Ph Ds have the basic skills, only a few become good researchers and very few go on to become great ones. A number of Ph D scholars are already employed in academics and take up Ph D mostly for career advancement. For those who are full time Ph D students, post Ph D pathways were discussed. The last theme of the talk was grant opportunities, how to write a grant, the dos and don'ts of grant writing and so on. The session ended with questions and answers.

## **Mentoring Session- 02**

### **Innovations at Incubator: A Helping Hand for Budding Entrepreneurs**



**Dr. Manesh Thomas**

CEO, Manipal-Government of Karnataka Bioincubator, Manipal, Karnataka, India.

Nurturing innovation through the promotion of high-tech knowledge intensive research are essential backbone for the technology development. nation. The awareness about various facets of innovation and entrepreneurship in healthcare are necessary to identify new opportunity to get involved into core technology research in which transformative and technology-driven ideas to create solutions for burning problems in health sector. For innovation it is essential to have clarity in problem, deep desire to have solutions from hidden treasure, revive it from big data, proof it through highly translational scientific research, and most importantly a vision beyond publications to create intellectual properties, technology and its commercialization.

For the implementation of innovation to entrepreneurship, in all sectors including healthcare, ready platforms are available for assistance from very early-stage idea and to transfigure it into products & service. Through policy, Government created supporting platforms that promotes technology based innovations, entrepreneurial ecosystem through incubators, Technology Business Incubator, accelerators, techno parks etc., which focused on the translational activities to promote entrepreneurship through incubation, mentorship, investment, technical assistance, technology handhold, business support, networking and commercialization opportunities.

In every sector opportunities are discovered based on the forecasted needs and gaps evaluated based on real problems and through quality interdisciplinary exploration with critical, creative, strategic and tactical thinking to create relevant innovative technology through incubation platform with world class faculties, infrastructure and services for the incubation of the start-ups. This bring positive change in the society with

high impact, also bridging the gap through implementation of solutions.

Key challenges in innovation and entrepreneurship journey are to identifying opportunities, which require understanding problems, visualising new ideas, creation of intellectual property, understanding regulatory and legal rules, product development, business formulation business offering, understanding the customer & market structure, raising capital and establishment of enterprises. Manipal- Government of Karnataka Bioincubator (Technology Business Incubator, TBI), established at Manipal is a joint venture by the Manipal Academy of Higher Education (MAHE) and Karnataka Biotechnology and Information Technology Services Government of Karnataka.

Manipal- GoK Bioincubator is a TBI with an area of 10 000 sq ft, consist of Dedicated Incubation Facilit., Shared Incubation Facility, Tissue culture Facility Common Instrumentation Facility co working space Dedicated Offices Plug and play Workstations and Class 100 Clean Rooms. Bioincubator programs are open for all innovators accros the globe and have various partial /vertual incubation programs like pre-Incubation, co-incubation, vertual incubation and full time incubation programs for Proof of concept, Testing, Validation, Trials and commercial operation.

Bioincubator facilitates incubatees with various services in technology management, IP management, technology transfer, business plan development, prototype development, refinement, fund, grants support assistance and market evaluation of the innovative technology ideas. Manipal-GoK Bioincubator may facilitate to provide network of third party professional service providers for accounting, IP, legal, corporate, regulatory and other management expertise based on the incubate requirements.

## ABSTRACTS: BASIC AND APPLIED SCIENCES

### Life Sciences

**BS-1001**

**Original Research**

**Oral Presentation**

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**Title:** Rapid detection of antibiotic resistance genes using gold nanoparticles

**Authors:** Arbaaz, Roy S, Apoorva J, Murali T S and K Satyamoorthy

**Authors affiliations:** Department of Biotechnology, Manipal School of Life Sciences, MAHE, Manipal - 576104, INDIA

**E-mail ID:** arbaaz.feroz@learner.manipal.edu

#### **Abstract**

Rapid and specific detection of pathogenic bacteria and their antibiotic resistance profile is necessary for appropriate treatment of chronic infections and also for considerably reducing morbidity and mortality rates associated with these infections. Gold nanoparticle-tagged probes is an attractive diagnostic method that has been widely used in detection of targeted genes in different bacterial species with high sensitivity and specificity. In the current study, we have designed probes for detection of antibiotic resistance genes for *Staphylococcus aureus* - a major pathogen commonly associated with wound infections. The specific hybridization of probes to targeted genes was studied using gold nanoparticle-based colorimetric assay. Persistence of red colour upon addition of 0.1 N HCl was observed in samples with sequences complementary to designed probes. The current assay has a limit of detection of 100 ng of DNA. With further improvement, this assay has high potential to be used as a point of care device that can detect antibiotic resistance genes thereby providing clinicians with empirical evidence for choosing suitable antibiotics to manage wound infections.

**Title:** Deciphering nutrient stress for production of biofuel precursors in *Selenastrum capricornutum* UTEX 1648

**Authors:** Roy N, Mariam I, Jutur P P

**Author's Affiliation:** Manipal School of Life Sciences, Manipal Academy of Higher Education, Manipal, Udupi - 576104, INDIA, Pre-Doctoral Fellow, Omics of Algae Group, International Centre for Genetic Engineering and Biotechnology, New Delhi - 110067, INDIA

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### **Abstract**

Decreasing fossil fuels and the impact of its use on global warming has led to an increasing demand for its replacement by sustainable renewable biofuel. Microalgae offer a potential feedstock for both the food and energy sectors. These are photosynthetic organisms used for third generation biofuels and offer considerable advantages over other fuel sources as it is renewable, clean, sustainable and can also sequester greenhouse gases like CO<sub>2</sub>. Microalgae have a tendency to alter their physiology under certain stress conditions and accumulate triacylglycerols and other high value products. *Selenastrum capricornutum* is a crescent-shaped, freshwater green microalga belonging to Chlorophyceae family, usually used as an ecotoxicological bioindicator and for bioremediation. In this preliminary study, the rationale is to understand the effects of different macronutrient deprivation i.e. nitrogen (N), phosphorus (P) and sulfur (S) on the growth and physiology of *S. capricornutum*. Our study reveals under different nutrient stress, nitrogen deprivation leads to the highest lipid production with almost 2.5-fold increase compared to the nitrogen replete conditions, suggesting that the carbon flux is diverted towards lipid and carbohydrate biosynthesis. Together, the nutrient deprivation studies will help us to gain insights into the lipid metabolic pathways for further engineering the regulatory hubs to increase the lipid productivity.

**Title:** Screening of wetland soil actinomycetes for natural pigment: extraction and characterization studies

**Authors:** Sruthy Sanjeev, Aswani T and Dr. Suchithra T V

**Author's Affiliations:** School of Biotechnology, National Institute of Technology Calicut, Kozhikode-673601, INDIA

**E-mail IDs:** sruthysanjeev2910@gmail.com

### **Abstract**

The demand for natural colors is increasing day by day due to the harmful effects of some synthetic dyes. Actinomycetes provide a readily available alternative source of naturally derived pigments. Wetland soil actinomycetes have become sources of great interest to natural product chemistry due to their ability to produce natural pigments. In this study about 50 actinomycetes were isolated from four different wetland soils of Wayanad district of Kerala, India and were screened for their competency to pigment production. The isolate with enhanced pigment generation was selected and was identified a *Streptomyces* sp. The strain was further fermented and the pigment was extracted using solvent-extraction method. Extracted pink-red pigment was chromatographed and characterized by UV-VIS spectrophotometer, FTIR and GC-MS analysis.

**BS-1006**

**Original Research**

**Oral Presentation**

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**Title:** Diethyl nitrosamine induced hepatocellular cancer and its alleviation by kadukkai maathirai (a polyherbal traditional siddha formulation) in rats

**Authors:** Manjunath Shetty, Smita Shenoy, Nitesh Kumar , Vasudha Devi , Arul Amutha, Ganesh Shenoy K & Mohandas Rao

**Author's Affiliations:** Department of Pharmacology, Melaka Manipal Medical College, Manipal Academy of Higher Education, Manipal, Karnataka, 576104, India, Department of Pharmacology, Kasturba Medical College, Manipal, Manipal Academy of Higher Education, Manipal, Karnataka, 576104, India., Department of Pharmacology, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal, Karnataka, 576104, India.

Email: manju.shetty@manipal.edu

### **Abstract**

Diethylnitrosamine induced hepatocellular cancer (HCC) model is used to mimic liver carcinoma. Kadukkai maathirai (KM) is used in the treatment of various liver diseases. There is no literature available about its effect on this model.

**Title:** Isolation of antimicrobial peptides from mangrove soil

**Authors:** Devika Muraleedharan<sup>1</sup>, Fathima Ridha Karuvanthodikayil<sup>2</sup>  
Sruthy Sanjeev<sup>3</sup> Ankit Verma<sup>4</sup>

Dr. Suchithra T.V.<sup>5</sup> and Benu George<sup>6</sup>

**Author's Affiliations:** School of Biotechnology, National Institute of Technology, Kozhikode - 673601, INDIA

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### Abstract

Antimicrobial peptides (AMPs) are an extensive group of proteins produced by a variety of tissues in invertebrates, plants, and animal species. They act as innate defense molecules that target the microbial membrane leading to growth arrest. Thus, they lead to the neutralization of pro-inflammatory surface components. Further they have been proven safe in preliminary clinical trials. In this study, isolates of mangrove soil were screened and selected. Out of eight isolates, three potent isolates were considered by initial screening methods of stab overlay and agar well diffusion. The agar well diffusion was facilitated with competitive inhibitory and chloroform stress methods. Stress exhibited by the competitive inhibitor gave a 20 mm and 15 mm zone of inhibition under un-sonicated and sonicated supernatant of the isolates respectively. Morphological identification of the isolates confirmed Strain A and B as gram positive rods and strain C as gram negative rods of bacteria. Species identification was done by 16S rRNA sequencing. Bromothymol blue (BTB) assay confirmed the presence of peptide activity of the isolates. Further confirmation of peptides was done using protease degradation followed by SDS Page.

**Title:** Conversion of Gaussian to Vortex beam using Spiral Phase Plate and Its Applications

**Author:** Ghanashyam C, Aseefhali Bankapur\*, Santhosh Chidangil

**Author's Affiliations:** Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal-576104, India

**Email:** asif.bankapur@manipal.edu

## Abstract

Spiral phase plate (SPP) is an optical element with an optical thickness that varies with azimuthal angle so that the incident beam arises with a spiral phase front. Thus, a Gaussian beam incident on SPP emerges out as a vortex beam having a central null region with doughnut shape intensity distribution. Herein we mainly concentrate on initial result obtained when an SPP is introduced into a micro-Raman setup. Beam profiling of the vortex beam was done at focus of a biconvex lens and compared with the Gaussian beam profile obtained at the same point. Images of the vortex beam were taken at the focus of the microscope objectives using the NIS-D elements software. The inner and outer diameter was measured to choose the appropriate sample for our studies. Raman spectrum of Tylenol was obtained using vortex beam and found that vortex beam was able to reproduce all the peaks recorded using the Gaussian beam. A dye-polystyrene system was prepared, and experiments were performed to show that using vortex beam Raman signals can be obtained exclusively from the boundaries.

**BS-1017**

**Original Research**

**Poster Presentation**

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**Title:** An investigation on the effect of oil surfaces on the crystallization of lysozyme protein using CW Nd: YAG laser

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## Abstract

X-ray crystallography is an accurate technique to get information about three-dimensional structures of protein and small molecules. However, the quality of the 3D structures depends on the high-quality single crystals used to collect X-ray intensity data sets. Getting high-quality crystals in the case of macromolecules always remain as a major bottleneck. Laser-

induced crystallization technique emerging as one of the alternatives and promising techniques to circumvent this difficulty. In this report, we have used CW Nd: YAG laser of wavelength 1064 nm to study the crystal growth of lysozyme protein using two different oil surfaced coverslips. In all the cases, oil surfaced coverslips yielding more abundant crystals than the regular coverslips. Thus, the result suggesting that surface assisted laser-induced crystallization method may play an essential role in protein crystallization.

**BS-1018**

**Original Research**

**Poster Presentation**

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**Title:** Biosynthesis and Characterization of silver Nanoparticles using leaf Extract of *Tridax Procumbens* and its Phytochemical screening

**Authors:** Arati Ganesh Lohar, L.R.Patil, Gururaj Tennalli

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### **Abstract**

Green synthesis of metallic nanoparticles have become a new and promising field of research in recent years. Plant-mediated synthesis approaches are found to be more reliable and economic route to synthesize these metal nanoparticles. The plant-mediated nanoparticles are used as potential pharmaceutical agents for various diseases such as malaria, HIV, cancer, hepatitis, and other diseases. The extremely small size of nanoparticles having a large surface area relative to their volume. Especially Silver(Ag), have drawn the attention of scientists because of their extensive application in the development of new technologies in medicines at the nanoscale. *Silver nan oparticles (AgNPs) have unique physiochemical, biological and environmental properties which make them useful in a wide range of applications.* An ecofriendly approach for green synthesis of nanoparticles using natural plant extracts is gaining a notable importance nowadays. In the present study, *Tridax procumbens* leaf has been used to produce the silver nanoparticles (AgNPs) from solvent system.

## Chemistry

**BS-3003**

**Original Research**

**Poster Presentation**

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**Title:** Corrosion Behaviour Of Zinc In Alkaline Medium: Electrochemical And Surface Studies

**Authors:** Mikitha Pais, Padmalatha Rao

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### Abstract

The corrosion behavior of zinc was investigated in different concentrations sodium hydroxide medium (0.25 N, 0.5 N, 1.0N) at different temperature range of 308-323K. The study was conducted by electrochemical methods, such as potentiodynamic polarization (PDP) method and electrochemical impedance spectroscopy (EIS) technique. The kinetic parameters and thermodynamic parameters were calculated using Arrhenius theory and transition state theory. The surface morphology was investigated using scanning electron microscope (SEM) with Energy-dispersive X-ray spectroscopy (EDX). The corrosion rate of zinc increased with increase in alkali concentration as well as with temperature. Suitable mechanism was proposed for the corrosion zinc in sodium hydroxide medium. The results obtained by potentiodynamic polarization (PDP) and electrochemical impedance spectroscopy (EIS) techniques were in good agreement with each other.

## Physics

**BS-3003**

**Original Research**

**Poster Presentation**

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**Title:** Applicability of different substrates for liquid LIBS studies using drop coating method

**Authors:** Keerthi K., Sajana D. George, Suresh D. Kulkarni, Santhosh C. and Unnikrishnan V. K.

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## Abstract

Laser Induced Breakdown spectroscopy (LIBS) is a promising technique for detection of heavy metals. It is a fast method which requires little or no sample preparation. Unfortunately, laser generated plasmas in liquids present several experimental challenges. When the plasma is induced by nanosecond laser pulse inside the liquid bulk, fast quenching of laser induced plasma occurs, and atomic emission becomes weak in its intensity having a short life time. This work communicates the feasibility of LIBS to analyze the liquid samples using three different substrates viz. glass, Poly methyl methacrylate (PMMA), Polydimethylsiloxane (PDMS) using drop coating method. The experimental method consists of sample deposition, drying and analyzing steps. Micro volumes of droplets are manually loaded onto different substrates using calibrated micropipette and dried using microwave oven. The dried sample are then subjected to high energy laser pulses to ablate the sample surface and emitted plasma is spectroscopically analyzed. Results obtained from all the three substrates were analyzed in detail and compared. It was inferred that PDMS exhibits strong enhancements in signal intensity for most of the analyte emission lines. Due to the hydrophobic property of PDMS exhibits uniform spot after the drying process. The surfaces exhibiting hydrophobicity can provide a solution for achieving uniform coatings.

**BS-6008**

**Original Research**

**Poster Presentation**

**Title:** Preliminary studies on stand-off LIBS-LIF-Raman spectroscopy system for *in-situ* material characterization

**Authors:** Dhanada V S\*, Sajjan D George, Santhosh Chidangil, Unnikrishnan V K †

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## Abstract

In stand-off measurements, the information about a particular sample from far distance is acquired by sensing and collecting the reflected or emitted signals from it. In our lab, we are aiming to develop a combined LIBS-LIF-Raman stand-off spectroscopy system which is capable of collecting LIBS, LIF, and Raman signals from the corresponding sample.

The requirements for the stand-off instrumentation involves a pulsed laser which is the energy source for illuminating the target surface, beam expander for focusing the incident radiation to a distance where the target is situated, a telescopic arrangement for the collection of the signals from a far distance. The uniqueness of our setup is the utilization of single laser and a single detector, which makes the system overall compact and cost effective , and can be used for field based applications.

**BS-6010**

**Original Research**

**Poster Presentation**

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**Title:** Immobilization and bulk refractive index sensitivity studies of Au nanoparticles on glass substrate for localized surface plasmon resonance (LSPR) based sensing applications

**Authors:** Hemant Hegde, Santhosh Chidangil and Rajeev K. Sinha

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### **Abstract**

Spherical gold nanoparticles are synthesized by well-known citrate reduction method. Gold nanoparticles in the solution are immobilized on a silanized glass substrate. UV-Vis spectrum of glass substrate confirms the successful immobilization gold nanoparticles. Refractive index sensitivity of gold nanoparticles both in solution and substrate is measured. This can be further modified to construct LSPR based sensors.

**BS-6011**

**Original Research**

**Poster Presentation**

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**Title:** Optical trapping of hybrid  $\text{NaYF}_4:\text{Yb}^{3+},\text{Er}^{3+}$  /Silica/Gold Microparticles

**Authors:** Suresh K, Aseefhali Bankapur, Santhosh Chidangil, and Sajan D. George

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## Abstracts

In this study, we report the synthesis of water dispersible upconversion microparticles ( $\text{NaYF}_4:\text{Yb}^{3+},\text{Er}^{3+}$ ) via hydrothermal method at  $180^\circ\text{C}$  for 4 hours and the average particle size of the prepared hexagonally shaped particles is estimated to be  $\sim 1.2$  using an optical microscope. The upconversion luminescence at a single particle level upon 980 nm excitation is measured by optically trapping the particle using a focused Gaussian laser beam at 1064 nm. Further luminescence studies following the coating with a silica shell via well-known Stober's method found to result in slight reduction of the upconversion luminescence of an optically trapped particle. However, the formation of a shell around the  $\text{NaYF}_4:\text{Yb}^{3+},\text{Er}^{3+}$ /silica shell found to enhance the intrinsic luminescence of an optically trapped microparticle by three folds. The present study clearly demonstrate that the plasmonic field created the metal shell can substantial enhancement in the upconversion luminescence which could be further exploited for biosensing, bioimaging and photothermal therapy applications.

**BS-6012**

**Original Research**

**Poster Presentation**

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**Title:** Design And Development Of An In-House Laser Beam Attenuator For Spectroscopic Studies

**Authors:** Adarsh U. K, Santhosh Chidangil and Unnikrishnan V.K

**Affiliations:** Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal-576104, INDIA

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## Abstract

Pulsed lasers are characterized by the ability to produce very high output peak powers compared to continuous wave lasers. Controlling the output energy of a high energy laser according to the experimental requirement is constrained by the cost of neutral density filters having high damage threshold. Even though filters are available, there is a limitation in having filters with a range of optical densities which result in the choice of required output energy. In view of this, a cost effective method is proposed and realized in the current work by using a combination of half wave plate and high energy threshold polarizer so that the energy required

can be controlled gradually from minimum to maximum by adjusting the orientation of the half wave plate. This lab based optical system allows to control the laser energy from a high energy laser in such a way that the choice of output energy is controllable. Also, compared to currently available aids it's cost-effective as well. This developed device is extremely useful in areas like pulsed laser based Raman spectroscopy wherein the input energy need to be kept below the ablation threshold of the sample under study to extract meaningful information.

**BS-6013**

**Original Research**

**Poster Presentation**

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**Title:** Opto-thermal Assembly of Biological cells

**Authors:** Monisha K, Aseefhali Bakapur, Santhosh Chidangil, Sajan D. George

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### **Abstract**

Swarms and assemblies represent a living way of biological individuals to face the challenges of a severe living environment. Similarly colloidal particles or biological cells can serve as a constituent to form a swarm or assembly. Variety of stimuli responsive (temperature, chemical, magnetic and electric fields etc.,) strategies have been developed to organize the colloidal particles into a complex structure which exhibits collective behavior. Here we report a novel approach for the assembling mechanism for biological cells in a liquid droplet via light induced temperature gradient on an absorbing bio-compatible thin film. The study elucidate that the assembling behavior of the biological cells are a function of opto-thermal conversion efficiency of the absorbing layer and the concentration of the biological cells in the medium. The laser power dependent inward pull of the particles towards the irradiation zone is further investigated and we envision the future application of the developed technique in biomedical field.

**Title:** Dual Functional Gold Nanocluster- Copper Sulfide Nanoparticle Hybrid for Cancer Cell Imaging and Therapy

**Authors:** Sanoop Pavithran M.<sup>1</sup>, Sajan D. George<sup>1,2</sup>, Santhosh Chidangil<sup>1</sup> and M. A. Habeeb Muhammed<sup>1</sup>

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**Abstract:**

Nanoclusters (NCs) of gold find applications in medical research thanks to their sub-nanometer size, UV-vis-NIR tunable luminescence, photostability and bio-compatibility. Novel nanohybrids with exciting new properties can be fabricated by combining nanoclusters with other functional nanomaterials. In this regard, a new bio-compatible nanohybrid merging NIR luminescent gold NCs and NIR plasmonic copper sulfide nanoparticles is fabricated via successive bio-mineralization processes using protein templates. The Nanohybrid exhibits NIR plasmonic band as well as NIR luminescence. The simultaneous exhibition of these optical properties can be exploited for simultaneous luminescent and plasmonic imaging of cancer cells so as to obtain complementary information. In addition to imaging, these nanohybrids can be used for photothermal and photodynamic therapy of cancer cells owing to the NIR plasmon as well as singlet oxygen producing capability.

**Title:** Optical Tweezers combined with Micro-Raman spectroscopy for the discrimination of microcytic anemia

**Authors:** Mithun N, Jijo Lukose, Javed Ahammad M M, Annamma Kurien and Santhosh Chidangil

**Author's Affiliations:** Department of Atomic and Molecular Physics, Manipal Academy of Higher Education, Manipal, Department of Pathology, Melaka Manipal Medical College, Manipal Academy of Higher Education, Manipal

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## **Abstract**

Beta thalassemia trait ( $\beta$ -TT) and iron deficiency anemia (IDA) are two most common types of microcytic anemia, which continue to be the reason of significant burden to the society, especially in the low income nations. Present work demonstrates the potential of Raman Tweezers as a single cell spectroscopic tool for discriminating IDA and  $\beta$ -TT. Conventional Raman spectroscopy suffers drawbacks in case of single, live cell investigations due to the Brownian motion of red blood cells suspended in blood plasma. The combination of optical tweezers with Raman spectroscopy offers biomedical scientists a better approach for extracting biochemical information at individual cell level. Raman Tweezers can be thus very advantageous for investigating the abnormalities from live, human red blood cells in absence of any fixative/labelling agents.

## ABSTRACTS: HEALTH SCIENCES

### Life Sciences

HS-1005

Original Research

Poster Presentation

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**Title:** Reference values of respiratory muscle strength in pediatric population: A narrative review

**Authors:** Saloni Pawar, Amitesh Narayan, Shreekanth D. Karnad

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#### Abstract

The present narrative review was intended to report the existing normative values of respiratory muscle strength in terms of Maximal Inspiratory Pressure (MIP) and Maximal Expiratory Pressure (MEP) in healthy children among various populations. A comprehensive search of databases retrieved 4367 papers of which 7 met our inclusion criteria of narrative approach and were relevant for the critique. Three reviewers identified and selected articles and abstracted the data. Methodology incorporated in these studies showed similarities but in terms of height and weight subjects had dissimilarities. The outcome measures used in the studies were MIP and MEP. The population and their reference values were as follows: Brazilian- MIP- Males:  $-88.59 \pm 20.28$  Females:  $-80.15 \pm 22.47$  MEP- Males:  $102.41 \pm 25.18$  Females:  $92.15 \pm 27.24$ , Navajo- MIP- Males:77 Females:67 MEP- Males:75 Females:66 cm H<sub>2</sub>O, Polish- MIP Males:  $113 \pm 27$  Females:  $101 \pm 27$  MEP Males:  $137 \pm 36$  Females:  $118 \pm 30$ , Korean- MIP:  $48.46 \pm 18.1$ , MEP:  $47.95 \pm 16$  cm H<sub>2</sub>O, Caucasian- MIP Males: 75(23), Females:63(21) MEP Males: 96(23) Females: 80(21) cm H<sub>2</sub>O, Dutch- MIP Males:  $113 \pm 27$  Females:  $101 \pm 27$  MEP Males:  $137 \pm 36$  Females:  $118 \pm 30$  cm H<sub>2</sub>O. Canadian- MIP- Males:  $116 \pm 26$ -  $14 \pm 12$ , Females:  $104 \pm 20$ -  $107 \pm 25$ . MEP- Males:  $142 \pm 25$ -  $204 \pm 337$  Females:  $129 \pm 29$ -  $138 \pm 33$ . The strength of respiratory muscles varied among different

population. The methodology, ethnic background and characteristics of the participants might play an important role in determining the respiratory strength. Among the presented study, the respiratory strength seen in boys was higher compared to girls. Few studies reported that the values of MIP and MEP had a positive correlation with age and height. To provide more accuracy, reference values are needed to be generated which are specific to a particular population and ethnic background.

**HS-1006**

**Original Research**

**Poster Presentation**

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**Title:** Sexual Narcissism Among Men with Sexual Dysfunctions: An Exploratory Study

**Authors:** Mr. Gautham Krishnan, Dr. Sebastian Padickaparambil, Dr. Joseph Thomas, Dr. Immanuel Thomas

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### **Abstract**

Previous studies have associated Sexual Dysfunctions(SD) to sympathetic arousal that is mediated by anxiety and personality traits. Sexual narcissism (SN) is validated among population with Cluster B Personality. The present study is an exploration into the role of narcissism in SD. A cross sectional design involving a sample of 62 men in the age range of 22-60 years, was used for the study. The sample consisted of 31 men having sexual dysfunctions and a matched control group of 31 men free from sexual dysfunctions. Tools used were International Index for Erectile Functioning, Modified MINI, Sexual Dysfunctional Beliefs Questionnaire, Sexual Narcissism Scale and Questionnaire for Cognitive Schema activation in Sexual Context. Scores were subjected to discriminant analysis and relevant variables were correlated to assess the strength of association.

**HS-1019**

**Original Research**

**Poster Presentation**

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**Title:** Correlation of Pectoralis Minor and Sternocleidomastoid muscle length with Lung function in patients with COPD

**Authors:** Saidan Shetty, Ritika Parate, Kevin Kurian, Doilyn Oliveira, Dr. Vaishali K., Mr. Anup Bhat, Mr. Mukesh Kumar Sinha

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### **Abstract**

Prevalence of COPD in India has increased by 36.3% from 1990 to 2016. NCMH identified about 17 million Indians suffering from COPD in 2006 amongst both gender. Along with COPD comes various secondary complications especially musculoskeletal dysfunctions and postural abnormalities. The purpose of this study is to find if this musculoskeletal dysfunctions contributes to decline in lung function. Pectoralis minor and SCM lengths were correlated with lung function taken using spirometry device. 47 patients with COPD were recruited and demographic data such as age, height, weight, BMI, medical history were attained. After informing the patient about the study a written informed consent was obtained from the patient before starting the assessment. Pectoralis minor length was assessed using an inchtape measuring from the caudal edge of the fourth rib to the coracoid process. SCM length was assessed by laterally flexing the head, then the head was slowly passively rotated to the opposite side till a soft end feel was noted this amount of rotation was measured using the bubble inclinometer. The normative value for Sternocleidomastoid muscle length was obtained by screening 100 individuals between the age group of 20-30 years. This obtained value was used as a reference to determine muscle tightness. The recent Pulmonary function test results were taken from the patient records. The parameters which were taken were FEV1, FVC and FEV1/FVC. Data analysis was done using Spss version 16. Results obtained show significant correlation only between pectoralis minor length on the left side and FEV1%.

**HS-1020**

**Original Research**

**Poster Presentation**

**Title:** A case study on the influence of social environment on the course of life of children of a commercial sex worker

**Authors:** Deepa V and Manjula MY

**Author's Affiliations:** Department of Postgraduate Studies and Research in Psychology, SDM College, Ujire -574240, India, Department of

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### **Abstract**

The case study aims to understand the influence of social environment on the course of life of children of a commercial sex worker. The participants of the study were children of a commercial sex worker who are siblings, who are 19 and 17 years of age. The older sibling lives with his mother while the younger sibling lives in a hostel distant from everyday influence of a brothel. The study adopts multiple case study design and in-depth interviews were conducted to gather data. The obtained data was subjected to thematic analysis. Each case was analyzed individually and then cross comparison of the themes derived was carried out. The findings indicated that environmental variance contributes to difference in experience and perception of the situation and society. The only overlapping theme that emerged in both cases was being protective about their mother.

**HS-1024**

**Original Research**

**Poster Presentation**

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**Title:** The Effects Tissue Flossing using Flossbands on the Musculoskeletal System – A Narrative Review

**Authors:** Ashish J. Prabhakar, Isha Devdas, Vivek D Patel, Manisha P. Shenoy

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### **Abstract**

The Flossband concept scaled on ideas presented by Dr. Kelly Starrett following the application of “Voodoo” Flossbands in Cross Fit Gyms across United States of America. The band can be administered to addresses issues at different tissue layers and fascial structures. There are two proposed mechanisms suggested, one is the fascial shearing theory and secondly the blood flow restriction (BFR) theory, upon which there has been considerable differences noted on different outcome measures used in clinical practice as well as in sporting performances. The concept of

flossing has brought about significant differences in relation to pain, while strength gains and range of motion would require further more exploration through controlled trails to provide conclusive outcomes.

**HS-1043**

**Original Research**

**Poster Presentation**

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**Title:** Upper limb Musculoskeletal Disorders in type2 Diabetes mellitus and its Association with Disability- A Narrative Review

**Authors:** Shravya Joshi, Charu Eapen

**Author's Affiliations:** Department of Physiotherapy, KMC Mangaluru-575004, INDIA

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### **Abstract**

The objective of this review is to understand the association between upper limb musculoskeletal disorders and disability in type 2 diabetics. A comprehensive search of data bases yielded 33141 papers. 17 articles were retrieved and title and abstracts of those articles was reviewed and 2 articles were found to be appropriate for the study by two reviewers. Results with respect to Upper extremity impairments show that 63% of patients with type 2 diabetes reported shoulder pain and/or disability. Joint range, Grip strength and key pinch strength were reduced as compared to the Non diabetic group. Also a strong negative correlation was observed between total SPADI score, shoulder joint range and muscle strength. Another study indicated that people with diabetes showed higher prevalence of carpal tunnel syndrome, trigger finger, Dupuytren's disease, and limited joint mobility. Women reported more disability, with significantly greater DASH scores. Also a majority of diabetics had diminished light touch. This review concludes that majority with 67-75% of type 2 diabetics have musculoskeletal disorders that are commonly manifested in the upper extremity (hand and shoulder) of which 63% reported with disability and had a major impact on their quality of life. Prompt identification and early intervention of musculoskeletal disorders maybe beneficial in reduction of morbidity rates.

**HS-1044**

**Original Research**

**Poster Presentation**

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**Title:** Muscle Co-activation in children with Cerebral palsy. – A Narrative Review.

**Authors:** Kiran Nadgauda, Amitesh Narayan, Shreekanth D. Karnad

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### **Abstract**

The aim of our review is to scrutinize and discuss available findings related to co-activation of muscles groups in children with cerebral palsy. This review aims to provide clarification about co-activation strategies and its effects on functional activities in upper extremity and gait as compared to typically developing children. A comprehensive search of databases yielded 1595 papers of which 22 articles were retrieved and titles and abstracts of those articles were reviewed by three reviewers and 8 of them were found appropriate for the study. Hence this review concludes that excessive coactivation of muscle groups is seen in all children with cerebral palsy. Further studies are required to investigate the therapeutic strategies that may be useful in breaking this abnormal pattern of muscle activation and its effectiveness in functional changes.

**HS-1046**

**Original Research**

**Poster Presentation**

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**Title:** A review of mobile apps for Self-Management of Knee Osteoarthritis.

**Authors:** Sonia Drishty Pinto, Qasim Quaid Johar, Y V Raghava Neelapala

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### **Abstract**

Osteoarthritis (OA) is a chronic degenerative disorder of multifactorial etiology characterized by the loss of articular cartilage. According to World Health Organization (WHO) 9.6% of men and 18.0% of women aged over 60 years have symptomatic osteoarthritis worldwide. 80% of those with osteoarthritis have limitations in movement, and 25% cannot perform their major daily activities of life. A community based cross sectional study across five sites in India conducted in big city, small city, town, and village was reported in 2016 to be as high as 28.7% (Pal et al, 2016). Long term limitation of function is one of the features of knee osteoarthritis and hence self-management plays a crucial role in treatment of self- management and adherence to the home program

prescribed plays an essential role in the rehabilitation of the patient of the treatment plan through mobile applications is one of the ways through which long term delivery of care can be ensured. Thus, the objective of the review is to summarize the currently available mobile apps that deliver self-management treatment options for knee osteoarthritis.

**HS-1047**

**Original Research**

**Poster Presentation**

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**Title:** Application of Transcutaneous Electrical Nerve stimulation in the management of pain following childbirth: A Scoping Review

**Authors:** Kiransha R. Velingkar, Dr. Bhamini Krishna Rao and Dr. Preetha R.

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**Abstract**

Transcutaneous Electrical Nerve Stimulation (TENS) is a non-pharmacological pain relieving modality. It is a simple, non-invasive, low-cost and easy-to-apply resource. It has shown to reduce pain after vaginal and caesarian section delivery thereby improving functional activities and reducing hospitalization. The effect of TENS on management of pain following childbirth is known but it lacks its applicability in routine clinical practice due to insufficient evidence. This Scoping review will analyze the different studies on placement of electrodes, duration of TENS application, frequency and type of TENS used and inform the viewers appropriate and effective methods of application of TENS in the management of pain following childbirth.

**HS-1048**

**Original Research**

**Poster Presentation**

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**Title:** Relationship Between Cervical Spine Dysfunction And Temporomandibular Joint Disorders: A Scoping Review

**Authors:** Shrija Shetty, Pooja Salian, Mariyam Shaikh, Kavitha Vishal and Triveni Bhat

**Author's Affiliations:** Department of Physiotherapy, Manipal College of Health Professions, MAHE, Manipal - 576104, INDIA, Physiotherapist, Mumbai, INDIA

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## **Abstract**

Recent years have seen a significant increase in the patients suffering from temporomandibular disorders. Temporomandibular disorders consist of group of pathologies that affect the temporomandibular joints and the masticatory muscles and/or related structures. Cervical spine has been associated with the changes in the stomatognathic system thus it is presumed to have an influence on temporomandibular joint and associated structures. Cervical spine impairments in temporomandibular disorders includes decrease in neck range of motion, altered pressure pain threshold, changes in cervical posture, muscular weakness and neck disability. There is need to assimilate evidence regarding cervical musculoskeletal impairments in temporomandibular joint dysfunction. This review will review the evidence about the relationship between cervical musculoskeletal impairments and temporomandibular joint disorder.

**HS-1050**

**Original Research**

**Poster Presentation**

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**Title:** Predictive Validity of Alberta Infant Motor Scale and Infant Neurological International Battery in Low Birth Weight Infants- A Narrative Review

**Authors:** Polisetti Siva Sai Anand, Amitesh Narayan, Shreekanth D Karnad

**Author's Affiliations:** Department of Physiotherapy, KMC Mangaluru-575004.

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## **Abstract**

The aim of this study was to narratively review the literature about predictive validity of Alberta Infant Motor Scale and Infant Neurological Battery in low birth weight infants. A literature search of the full text articles available in the following databases: PUBMED, Latin America and Caribbean Center on Health Sciences (BIREME), CINAHL, Google Scholar, Scopus, Cochrane Library was carried out. The search strategy included the combination of the following keywords: low birth weight, neuro motor development, neuro motor assessment, Alberta Infant Motor Scale, Infant Neurological International Battery. A total of 1575 articles were identified from the initial search in databases. After an initial screening and removal of duplicates, we selected 41 abstracts for complete reading,

7 articles were selected for this review. The findings of this review have demonstrated that there are several studies done to test the validation of one scale over the other like concurrent validity, predictive validity and reliability on AIMS and HINT, AIMS and BSID-III, INFANIB and PDMS-2. These studies mainly conducted on preterm infants (SGA) or term infants not on low birth weight infants. The results were concluded that there is a scope to test predictive validity of AIMS over INFANIB on low birth weight infants as both the scales are reliable measure to test the motor ability in low birthweight infants.

**HS-1053**

**Original Research**

**Poster Presentation**

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**Title:** Effects of moderate intensity aerobic and resistance training versus progressive muscle relaxation on sleep quality in elderly with primary insomnia.

**Authors:** Rao Suchitha Shivananda, Shyam K Krishnan, Dr Vijaya Kumar, Dr Sheetal Raj

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## **Abstract**

### **Introduction:**

Insomnia is often neglected area in geriatric care rehabilitation. The most common recommended non-pharmacological interventions to address insomnia in this population are exercise training program, relaxation exercises, music therapy and yoga. There are limited literature to compare the efficacy of the non-pharmacological treatment methods to improve sleep quality and its associated benefits in geriatric rehabilitation. Hence the aim of the current study is to compare the moderate intensity aerobic and resistance training versus progressive muscle relaxation on sleep quality in elderly with primary insomnia

**Materials:** Pittsburgh sleep quality index questionnaire(PSQI).

**Methods:** The study design is a non-randomised crossover clinical trial. Nine participants with primary insomnia were allocated to the exercise group (A) and progressive muscle relaxation group (B).Subjects in group

A was administered with moderate intensity exercise where the group B was trained with Jacobson's relaxation technique and diaphragmatic breathing technique for 30-60 min prior to their bed time. Subjects in both groups were asked to follow the same next six days. Subjects underwent a washout period for next six days where they will instructed not to practice any of earlier intervention. On 7th day subjects in group A will crossover to group B and vice versa for training and outcome measures were collected as per the schedule in first part of trial.

**Analysis:** Data was analysed using SPSS version 16.0. For comparison across the groups, student test and repeated ANOVA and chi square test is used.

A p value <0.05 is considered as statistically significant.

**Results:** There were no statistically significant found between the groups ( $p>0.05$ ) but statistically significant difference was found within the groups ( $p<0.001$ ).

**Conclusion :** Moderate intensity aerobic and resistance training and progressive muscle relaxation were found to have equally and similar short term effects on primary insomnia in elderly. Hence both the techniques can be implemented as a non-pharmacological management in primary insomnia.

**Implications:** Both interventions had improved sleep quality in management of primary insomnia in elderly.

**HS-1054**

**Original Research**

**Poster Presentation**

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**Title:** Effect of a Pedometer-based Exercise Program on Cancer Related Fatigue & Quality of Life in patients with Breast Cancer receiving Chemotherapy

**Authors:** Aagna Gandhi, Stephen R. Samuel, K. Vijaya Kumar, PU Prakash Saxena, Prasanna Mithra

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**Abstract**

**Purpose:** Fatigue, resulting from breast cancer and its treatment has been linked with decrease in physical activity. The purpose of the study was to evaluate if Pedometer based exercise program brought about any significant changes on Cancer-Related Fatigue & Quality of Life in patients with Breast Cancer undergoing Chemotherapy.

**Relevance:** If the pedometer based exercise program is effective, the regime can be incorporated with conventional treatment as a home-based exercise program for the patients with breast cancer who receive chemotherapy.

**Participants:** 15 newly diagnosed patients with breast cancer receiving chemotherapy were recruited wherein 8 patients were in intervention group and 7 patients were in the control group. Convenient Sampling method was used.

**Methods:** Intervention Group received a pedometer with a daily target of 10,000 step count, whereas Control group received conventional physical activity advice as given by NCCN. Both the groups were assessed for the outcome measures at baseline and after their 2<sup>nd</sup> and 3<sup>rd</sup> chemotherapy cycles.

**Analysis:** For comparison between the group student t test and repeated measure ANOVA and chi square test was used. A p value of <0.05 was considered statistical significance.

**Results:** The results show a statistical significance in Quality of Life (p= 0.001). Although there was increase in Fatigue, it was not statistically significant (p= 0.165). Difference in medians of Step Count at beginning and end of treatment changed from 2733 to 9568steps.

**Conclusion:** Exercise results in increase in fatigue but has positive effects on Quality of life.

**Implication:** Pedometer based exercise program are feasible for prescribing a home based program in patients with breast cancer and can be used as a routine practice for home based exercise prescription.

**HS-1055**

**Original Research**

**Poster Presentation**

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**Title:** Both Bone Forearm Fracture associated with Posterior Interosseous Nerve Injury and Suspected Anterior Nerve Injury – A Case Report.

**Authors:** Vrushali Rajesh Patil, Charu Eapen, Ashish Prabhakar, Vivek Patel.

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### **Abstract**

This case report presents a case of 39 year old man who sustained a right both bone forearm fracture (BBFA) complicated with posterior nerve injury (PIN) where he underwent surgery for BBFA and was managed by Limited Contact- Dynamic compression plate following which he was referred to physiotherapy treatment three weeks post-surgery. On examination he was unable to flex and extend his thumb and index finger, elbow extension lag, wrist extension. During the evaluation it was also suspected to have the Anterior interosseous nerve (AIN) injury due to involvement of the Flexor pollicis longus (FPL), Flexor Digitorum Profundus (FDP) and Pronator Quadratus (PQ). Therefore, the rehabilitation protocol was focussed on recovery of AIN and PIN injury. He underwent physiotherapy treatment for 3 weeks with 2 month follow up, where there was great recovery with respect to AIN injury. Therefore, we can say that FDP, FPL and PQ tendon were adhered due which it appeared like the involvement of AIN injury. There was also good recovery seen with respect to the PIN injury. Therefore, this case reports concludes that with BBFA distal nerve injury can be suspected and should be ruled out. Proper rehabilitation can lead to great recovery to the injury.

**HS-1056**

**Original Research**

**Poster Presentation**

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**Title:** Early Rehabilitation of Hansens Neuritis: A Case Report

**Authors:** Joel Pinto, Ashish Prabhakar, Charu Eapen.

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### **Abstract**

**Introduction:** In Pure neuritic hansens the upper limb is most commonly involved with Ulnar nerve being the nerve most commonly affected. There is early occurrence of WHO grade 1 disability in most cases of pure neuritic hansens . Unfortunately, progression to grade 2 disability is

common, unless recognized and managed promptly. The main objective of physiotherapy in hansen's is prevention of deformity, correction of deformity and restoration of function. Physiotherapy treatment may include electrical stimulation, active ROM exercises, resistance training and sensory integration therapy based on the patient's presentation.

**Method:** case report on a female patient with hansen's neuritis came with complaints of tingling, weakness and clawing of the last 2 digits was started on early rehabilitation for a period of 1 year.

**Discussion:** the main objective of this study was to show the effects of early rehabilitation on patient with hansen's neuritis of ulnar nerve. In conclusion the study showed that there was significant improvement in strength and function of the affected hand. Rehabilitation also helped in preventing deformity. There may be an association between vit E and strength gains.

## Dental Sciences

HS-2027

Original Research

Poster Presentation

**Title:** Management of Multiple Periradicular Cystic lesion Using Combined Endodontic and Periodontal Therapy: A Case Report

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### Abstract

Periapical surgery is a common treatment modality to deal with refractory lesion in the teeth that have been previously endodontically treated. Periapical surgery aims to gain access to the periapical region and allows clinician to remove the periapical pathology. After the removal of the periapical pathology, space left by the removal of the cystic lesion is filled with regenerative materials to facilitate bone formation and regeneration of lost alveolar bone. Bone grafts, growth factors and GTR membranes form an array of regenerative materials that are used during the treatment of periapical surgery. The success of the periapical surgery not only depends on the complete removal of the pathologic lesion at the periapex but also on the nature and extent of flap reflected, type of regenerative

material used, patient systemic condition, effectiveness of the endodontic therapy. Mucosal flap design are commonly preferred over conventional sulcular technique, especially in the aesthetic zone. In the present case reports aims to highlight the use a mucosal flap design along with use of Platelet rich fibrin for the management of periradicalr cystic lesion in the mandibular anterior region.

**HS-2036**

**Original Research**

**Poster Presentation**

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**Title:** Efficiency of mobile video sharing application (WhatsApp) in live field image transmission for telepathology: A Pathologist's perspective

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### **Abstract**

Telepathology is in its nascent stages in India. Video calling applications in mobile phones can be efficiently used to transmit static and live field microscopic images hastening low cost telepathology. Telepathology is in its nascent stages in India. Video calling applications in mobile phones can be efficiently used to transmit static and live field microscopic images hastening low cost telepathology. To evaluate the efficiency of WhatsApp® Video Calling for dynamic microscopy in distant diagnosis. Thirty haematoxylin and eosin stained slides of common pathologies were retrieved from the archives of Department of Oral Pathology and Microbiology, coded with relevant history and given to three untrained investigators. The investigators then connected a mobile phone with VOIP facility to a microscope using a custom adaptor. Dynamic fields were transferred to three independent pathologists via WhatsApp® video call. The pathologists attempted to diagnose the lesion based on the live field video over their display screen (phone).

**RESULTS:** Audio quality was found to be better than that of video. In 70% of the cases, pathologists could render a diagnosis (13% gave a confirmed

diagnosis, 57.7% gave a probable diagnosis). The average time taken for connecting the adaptor, connecting the call to the pathologist and then receiving the diagnosis was 9:30 minutes. In addition, proper history taking and staining of the tissue slides were critical to arrive at the diagnosis. WhatsApp® free VOIP facility helped untrained investigators to send the live-field pathologic fields to a specialist rendering histopathological diagnosis. The factors affecting the diagnosis included network stability, clarity of images transmitted, staining quality and contrast of nuclear details of the stain. The history, clinic-pathologic correlation, transmission of static images, training of the person transmitting the images plays a vital role in rendering accurate diagnosis. Telepathology over WhatsApp® video calling could be used as an efficient screening tool to identify suspicious lesions and follow-up critical cases.

**HS-2045**

**Original Research**

**Poster Presentation**

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**Title:** CBCT - A boon in endodontic diagnosis and planning treatment- A novel approach of treatment for a rare case of molariform supernumerary tooth

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### **Abstract**

CBCT, a technology that constructs three-dimensional facial skeleton images, allows quick image processing and confirms the overlooked or misdiagnosed findings by two-dimensional radiographs such as IOPA. Supernumerary teeth or hyperdontia is surplus or excess teeth number. Their debilitating trait and potential to generate pathological disturbances concerns for early intervention and prompt management. A rare form of supernumerary teeth is molariform, closely resembling the morphology of pre-molar tooth. Such was a case where a rare molariform supernumerary tooth was diagnosed correctly with CBCT and was saved,

which otherwise would have been misdiagnosed as fracture advised for extraction.

**HS-2052**

**Original Research**

**Poster Presentation**

**Title:** Titanium dioxide nanoparticle reinforced denture resin: A systematic review and meta-analysis

**Authors:** Madhu Keshava Bangera, Ravindra Kotian

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### **Abstract**

The study was designed to assess the change in flexural strength of unmodified heat cure denture base polymer resin on reinforcement with titanium dioxide nanoparticles in different concentrations. In vitro, randomized control trials reporting flexural strength of titanium dioxide nanoparticle reinforced resin were selected. The review was formulated based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses- Protocol (PRISMA-P) guidelines. Quality assessment was performed according to Consolidated Standards of Reporting Trials (CONSORT) guidelines and risk of bias Cochrane tool. Six studies were subjected to a meta-analysis in the category of 0.5%, 1%, 2.5%, 3%, 5% weight fractions of titanium dioxide nanoparticles. A meta-analysis was performed using random effects at a 95% confidence interval. Within the limitations of the study, it can be assumed that there is no precise conformity on the ideal titanium dioxide nanoparticle concentration required to improve the flexural strength of the polymer. Stringent use of standard ISO guidelines may help in obtaining consistent results and reproducibility of the experiment

**HS-2057**

**Original Research**

**Poster Presentation**

**Title:** Barodontics -The Rising Upfront In Dentistry : A Review

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## Abstract

With the plethora of opportunities Marine Biology, Astronomy and Aviation industry is providing, people are exposed to different barodynamic environments which has a substantial impact on the maxillofacial region. Barodontics, an upcoming field of dentistry investigates on the various etiology and implications of barotrauma, their management, screening, prevention and prognosis.

## Medicine

**HS-3003**

**Original Research**

**Poster Presentation**

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**Title:** Utility of pumpkin seed extract in Aluminium chloride induced Alzheimer's disease rat model

**Authors:** Vijetha Shenoy Belle, R Sai Prathap Yadav and Nitesh Kumar Prasanna Kumar, Naveen Kumar

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## Abstract

Herbal medicines have gained importance as they have less or no adverse reactions. Pumpkin seed extract is enriched with unsaturated fatty acids, phytosterols, phytochemicals, antioxidants, and minerals. The study was done to evaluate the effect of 80% ethanolic extract of pumpkin seed in Aluminium chloride induced Alzheimer's disease rat model. Ethanolic extract of pumpkin seed was given orally at 100, 200 mg/kg doses for 21 days and assessed for behavioral studies and biochemical parameters such as anti-oxidant enzymes and acetylcholinesterase, which showed significant ( $p < 0.005$ ) difference following the treatment. Biochemical and behavioral results suggested that pumpkin seed contain compounds which are effective in the treatment and may improve the prognosis of Alzheimer's disease.

**Title:** Effectiveness of polyherbal formulation for the treatment of Type 2 diabetes mellitus - A systematic review and meta-analysis

**Authors:** Renuka Suvarna, Revathi P Shenoy, Basavaraj S Hadapad, Anupama V Nayak

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### **Abstract**

*Background & aim-* Type 2 Diabetes is multifactorial disease caused by multiple factors. The morbidity and mortality rate due to microvascular and macrovascular complication in diabetes patients are increasing worldwide which requires an ideal treatment. The ancient system of medicine Ayurveda originated from India is gaining more attention in diabetes due to its efficacy and safety. Therefore, we conducted a systematic review and meta-analysis of clinical trials conducted in India to assess the comparative efficacy of polyherbal formulation in patients with type 2 diabetes.

*Methods-* PubMed, Scopus and CINAHL database were searched for clinical trials investigating the effect of polyherbal formulation in Type 2 diabetes patients. Meta- analysis of eligible studies was conducted using Revman 5.1 software.

*Results-* Seven randomized controlled trials met the inclusion criteria and were analysed. Meta- analysis of findings showed a significant effect of polyherbal formulation on blood sugar level. The polyherbal formulation showed significant decrease in fasting blood glucose, post prandial blood glucose and glycated haemoglobin. No serious adverse effects from usage of polyherbal formulation were reported.

*Conclusions-* Polyherbal formulations appeared to be effective for treating Type 2 diabetes mellitus but their efficacy in managing diabetic complications needs to be validated. Therefore, a long term randomized

placebo controlled trials of adequate sample size are required to determine the efficacy of polyherbal formulation in managing diabetes and its complications.

**HS-3009**

**Original Research**

**Poster Presentation**

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**Title:** Serum micronutrients in cases with spontaneous abortion

**Authors:** Sairoz, Krishnananda Prabhu RV, Vidyashree G Poojari, Sahana Shetty, Mahadeva Rao, Asha Kamath

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### **Abstract**

Nearly 25% of pregnant women have some degree of vaginal bleeding during the first trimester, and about 50% of those pregnancies end in spontaneous abortion. Maternal malnutrition during gestation can impair embryonic and fetal growth and development, resulting in deleterious outcomes. But the knowledge of trimester wise cut offs for these micronutrients are lacking. So, this study measured the serum zinc, copper, magnesium and iron in patients with spontaneous abortion (n= 15) and healthy pregnancy (n= 12) in their first trimester. There was a statistically significant decrease in the serum copper (Cu) levels in spontaneous abortion cases when compared to controls ( $p < 0.002$ ). Our results indicate that the plasma Cu concentration has a potential to be used as an additional parameter in diagnosis of pathological conditions in pregnancy, particularly concerning the first trimester.

**HS-3010**

**Original Research**

**Poster Presentation**

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**Title:** Awareness and perception among Indian mothers on neonatal screening for congenital and metabolic disorders

**Authors:** Prajna P Shetty, Leslie Lewis, Pragna Rao, Sudeep Moorkoth and Nalini K

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### **Abstract**

Mothers, the immediate caretakers of their newborns, play a pivotal role in healthcare decisions of their neonates which directly relies on their knowledge and perception about diseases and their screening. This may impact implementation of any programs including newborn screening. This study intends to understand the awareness and perceptions of mothers on neonatal screening for congenital and metabolic disorders. This study captured awareness and perception of thirty-five postnatal mothers 'using semi-structured questionnaire. The study demonstrated that majority of the mothers interviewed were not aware of metabolic disorders and the importance of newborn screening. The findings of this study suggests a need for radical need for antenatal counseling of mothers to achieve the goal of limiting neonatal morbidities arising from inherited metabolic diseases a reality.

**HS-3011**

**Original Research**

**Poster Presentation**

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**Title:** Knowledge of Interns on Communication of Preparations for Biochemical Tests

**Authors:** Varashree B S, Revathi P Shenoy

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### **Abstract**

Biochemistry, is one of the preclinical subjects, where mostly metabolic pathways are taught in detail. One must not forget that, it involves laboratory diagnosis too, which is most essential for appropriate patient care. To have a better and a proper laboratory investigation, the patient

preparation and pretest counseling must be appropriately done. If not properly communicated there can be spurious results, which hampers the patient care. The present day practitioners or interns do not communicate well with the patients regarding the pretest preparations, so this is a challenging situation in education. There is no emphasis given to the communication skills essential for the pretest counselling. Therefore an assessment of pretest preparations was done and the analysis of the result showed that the students were aware of some of the aspects.

**HS-3014**

**Original Research**

**Poster Presentation**

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**Title:** Retrospective study of Demographic, Clinical and Laboratory Data of Malarial infections from a tertiary care centre in south-west Coastal Karnataka

**Authors:** Asem Ali Ashraf, Vinay Khanna, Akshita Gupta and Ruchee Khanna

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### **Abstract**

India is one of the most populous countries in the world with ongoing malaria transmission; being co-endemic for both *Plasmodium falciparum* and *Plasmodium vivax*. A retrospective study of malaria-positive individuals was conducted at Kasturba Hospital (Kasturba Medical College, Manipal) from January 2015 to May 2018 to analyze particular trends and clinical indicators associated with malarial infections. In total, 403 patients were included in this study, of which males were significantly more in number than females. Amongst the causative agents, *P. falciparum* were mildly greater than *P. vivax*. Though the treatment outcome was 99.7% in this study, malaria is still a significant health problem in this region, mortalities due to its complications are still inescapable.

**HS-3018**

**Original Research**

**Poster Presentation**

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**Title:** Assessment of the symptomatology and attitude of hypothyroid patients when shifted from morning dose to evening dose levothyroxine

**Authors:** Reena Sherin Parveen

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### **Abstract**

Primary hypothyroidism is a common endocrine disorder which occurs due to thyroid hormone deficiency. Levothyroxine sodium, the prime treatment for hypothyroid patients is typically consumed on empty stomach half hour before breakfast in order to prevent food interference with drug absorption. Many patients find morning time inconvenient because of their lifestyle or due to intake of other concomitant drugs and thereby prefer an alternative time for drug intake. Fewer studies have been conducted to explore the benefits of evening dose levothyroxine. The objective of this study was to assess the impact of change in timing of drug administration on the patient's symptoms using thyroid symptom questionnaire. After ethical committee approval, 60 hypothyroid patients with TSH value in the laboratory reference range (2.7-4.2IU/L) over the preceding six months and on morning dose levothyroxine (1.6 mcg/kg/day) for a period of 3 months were recruited. They were started on evening dose levothyroxine which was given two hours post-dinner for a period of 6 weeks. At the end of this period TSQ (Thyroid Symptom Questionnaire) scores were assessed and compared to baseline responses along with thyroid profile. Upon completion of the interventional period and repeat investigations, the patients were put back on their regular morning dose of levothyroxine.

All the study subjects were females and the mean age group was 42.05 ( $\pm 11.94$ ) years. Among the different parameters assessed before and after therapy there was no significant change in the weight, BMI (body mass index), TSH levels or TSQ scores. The average TSQ score with morning dose was 1.21 and TSQ score with evening dose was 1.11, which was not statistically significant. The patients who were willing to continue the evening dose opted for the same with reasons being early work schedule, early morning coffee intake habits, among others. The remaining patients who wished to continue morning dose mainly wished to do so as they were not used to having an early dinner schedule and the two hours waiting period was cumbersome. Following evening dose, there was no significant change in TSQ scores before and after therapy. Post-study only

31.7% of patients were keen to continue with the evening dose schedule. The individualistic choice of patients for evening dose was compromised due to cultural and socio-behavioral pattern. Thus, it is only the personal timings and eating habits that dictate the choice of levothyroxine intake. Customized therapy is essential which caters to patient's wants, centered on their eating habits, suitability and laboratory parameters.

**HS-3021**

**Original Research**

**Poster Presentation**

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**Title:** Monitoring of treatment response and adverse drug reaction profile of escitalopram in South Indian patients with depression: A prospective observational study.

**Authors:** Tatiyana Mandal, K Laxminarayana Bairy and PSVN Sharma

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### **Abstract**

Major depressive disorder (MDD) is a severe psychiatric disease associated with high suicide risk. Escitalopram, selective serotonin reuptake inhibitor (SSRI), is a frequent choice of drug for the treatment of MDD because of its superior efficacy and tolerability compared to conventional antidepressants. The critical problem associated with the management of MDD is the wide variability in individual clinical response to antidepressants. A substantial number of patients fail to adhere to antidepressant therapy because of adverse drug reactions (ADR) to antidepressants. Since antidepressant response is a complex trait influenced by clinical, environmental, genetic and drug associated factors, treatment response and ADRs might vary in different populations. Therefore, it is important to create a population-specific evidence base for efficacy and tolerability profile of antidepressants which will help clinicians to make the best choice for each individual patient. In the present study, we tried to explore the treatment response and ADR profile of escitalopram in South Indian patients with MDD. Findings of our study should serve evidence-based practice and inform patients, clinicians,

pharmacists and policy makers on the relative merits and demerits of escitalopram.

**HS-3022**

**Original Research**

**Poster Presentation**

**Title:** A study correlating progressive dysmenorrhea with ovarian endometriosis (chocolate cysts) diagnosed by ultrasonography in women of child bearing age group in a tertiary care hospital.

**Authors:** Rituparna C, Tah Tze Wei, Kang Yi An, Sangkradhevan A/L Krishnamoorthy, Ang Jia You, Ashwin Sekar and Ujjal B

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### **Abstract**

Among twenty-five million women suffering from endometriosis in India, 20 to 40% suffer from ovarian endometriosis (chocolate cysts) which is a significant cause of infertility. Patients may experience progressive dysmenorrhea, dyspareunia, dyschezia, excessive bleeding and have infertility issues. Reliable diagnosis of ovarian endometriosis though challenging, can be established only via visualization at laparoscopic surgery. However imaging techniques (ultrasonography or MRI) can also help in detecting endometrioma and deep endometriosis followed by histological confirmation of excised endometriotic lesions, showing the presence of endometrial glands and stroma. Ultrasound is used as a tool for preoperative diagnosis preceding surgery for the removal of the lesions caused by deep infiltrating endometriosis, giving a first insight to the surgeons about the extent of the disease. This study was aimed at finding out early endometriotic lesions through non-invasive imaging system in patients with progressive dysmenorrhea in a tertiary-care hospital in Manipal, so that early diagnosis and treatment would alleviate their sufferings from the sequelae associated with this chronic condition. Retrospective data of patients with ovarian endometriosis admitted between September 2017 to August 2018 were collected from medical records using predesigned data collection form after obtaining ethical committee approval. Among

the 108 cases of ovarian endometriosis, progressive dysmenorrhea was observed in most (78.8%) of the cases with ovarian endometriosis diagnosed by ultrasonography in the study population. We found out that progressive dysmenorrhea was a significant ( $P<0.05$ ) relative risk factor for ovarian endometriosis as observed in this study. Furthermore, ultrasonography had a good sensitivity (82.2%) to detect ovarian endometriosis, making it a good non-invasive diagnostic method. This might be encouraging for women by helping them overcome the social stigma by reporting earlier to the clinic regarding their menstrual problems, with early treatment options and hence increased chances of a better quality of life.

**HS-3023**

**Original Research**

**Poster Presentation**

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**Title:** Validation of instruments for hemoglobin estimation in screening blood donors

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### **Abstract**

Estimation of hemoglobin in a donor prior to blood donation is a mandatory requirement as per Drug & Cosmetics Act, 1940. The minimum hemoglobin requirement for blood donation is 12.5g/dL. There are various methods of estimation of hemoglobin, however, selection of testing methodology for hemoglobin estimation is essential for accurate measurements, to avoid false pass or fail. The objective of our study is to compare the efficacy of point of care hemoglobin estimation methods against automated cell counters. The hemoglobin estimation was performed using the same venous sample on three different platforms, that is automated cell counter (Sysmex, Cell Dyn), Comp lab TM (Fresenius Kabi) and True HB Hemometer (Span Diagnostics). Data was analyzed in SPSS version 16. Both equipments might be considered for application in blood banking for screening of donors for blood donation compolab showing no significant differences when compared to true HB Hemometer.

**Title:** Evaluation of Wound Healing Activity of an Ethanolic Extract of *Anacardium Occidentale* Leaves in Wistar Rats

**Authors:** Meena Kumari K, Charitha ,Praveen, Sushma RK ,Amberkar Mohanbabu Vittalrao

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### Abstract

This study was under taken to evaluate the effect of wound healing activity of an ethanolic extract of *Anacardium occidentale* leaves in Wistar rats. Excision wound of 500mm<sup>2</sup> was created on back of wistar rats. Thirty adult wistar rats were divided into 5 groups of 6 rats each .Group I (control)-normal saline, Group II –povidone iodine, Group III and IV -0.5% and 2% *Anacardium occidentale* ointment respectively, Group V-2% *Anacardium occidentale*+dexamethasone. All drugs were applied topically except dexamethasone (intramuscularly).The period of epithelialization and the rate of wound healing was noted. There was no statistical significant difference exhibited among rats treated with standard and both the doses of test drugs as compared to normal saline with respect to mean period of epithelialization.On 5<sup>th</sup>, 9<sup>th</sup>, 13<sup>th</sup> and 17<sup>th</sup> days of drug treatment, there was no significant change in the rate of wound contraction with in rats treated with two doses of test drugs 0.5% and 2% of *Anacardium occidentale* extracts compared to normal saline. The plant extract 0.5% and 2% of *Anacardium occidentale* did not show any significant change in rate of wound contraction as compared to the standard drug povidone iodine also. The combination of (2% *Anacardium occidentale* extract+dexamethasone) drug treated rats exhibited decreased rate of wound contraction which was statistically significant (p<0.001) compared to the rats treated with normal saline and povidone iodine on all days i.e. 5<sup>th</sup>, 9<sup>th</sup>, 13<sup>th</sup> and 17<sup>th</sup> days. Rats treated with povidone iodine showed slight increase in wound contraction compared to normal saline. In our study, topical application of *Anacardium occidentale* leaf extract did not show wound healing activity.

**Title:** A phytochemical evaluation and HPTLC fingerprint profile of root extract of *Clitoria ternatea*. Linn. grown in Udupi district

**Authors:** Prathibha Maria D Almeida<sup>1</sup>, Kiranmai S Rai, Shobha U Kamath

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### Abstract

This study was aimed at elucidating the phytochemical constituents, physiochemical properties and HPTLC finger print profile of *Clitoria ternatea*.L root extract (white flowering variety), grown in Udupi district. Results showed, extraction yields from aqueous extract was 7.83 gm, 17.2% of total ash, 5.7% acid insoluble ash and 7.9 % water soluble ash. The moisture content was found to be 14.5%. Various phytoconstituents like alkaloids, flavonoids, steroid, carbohydrates, coumarins and resins were found in the extract. HPTLC fingerprinting profile of the extract indicated, absorbance at both 254nm, and 366 nm as well as best results observed at visible light range of 620nm. With densitometry records of HPTLC fingerprint scanned at wavelength 620 nm for alcoholic root extract of *Clitoria ternatea* revealed the presence of 9 phytoconstituents and  $R_f$  [retardation factor] values ranged from 0.04 to 0.83. The component with  $R_f$  values 0.06, 0.67 were found to be more predominant as the percentage area was more with 24.71% and 35.53 % respectively. In conclusion the present study provides scientific data and regarding phytoconstituents, physiochemical properties and HPTLC fingerprint profile of root extract of white flowering variety of *Clitoria ternatea* from Udupi district.

**Title:** Comparing the effect of statins on hepatic fibrosis induced by carbon tetrachloride in wistar rats

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## Abstract

Statins produce pleiotropic effects in addition to their primary lipid lowering action. Studies have shown contrary results regarding hepatoprotective action of statins. The purpose of this study was to assess and compare the antifibrotic effects of statins in carbon tetrachloride (CCl<sub>4</sub>) induced hepatotoxic animal model. Forty two rats were divided into 7 groups (I to VII) (n=6). Liver toxicity was induced by injecting carbon tetrachloride (1ml/kg) bu intraperitoneal route. Control groups received Corn oil (0.1ml/100gm) and Carboxy methyl cellulose (0.50%) respectively. Group III to VII received CCl<sub>4</sub> for 6weeks. After that, Groups IV, V, VI and VII received Simvastatin (10mg/kg), Atorvastatin (15mg/kg), Rosuvastatin (2mg/kg) and Silymarin (50mg/kg) for another 8weeks respectively. At 14 weeks, histopathology of liver was done in all the groups. Histological scoring in different groups was compared using Pearson's-chi square test. P-value < 0.05 was taken as significant. Different histological features studied in the study included inflammation, necrosis, and fibrosis. A significant difference (p= 0.03) was seen between the groups regarding inflammation. Necrotic signs were significantly different (p < 0.001) between the groups. Also significant difference was observed (p = 0.005) between the groups on comparing fibrosis. On intergroup comparison, there was decrease in hepatic fibrosis by statins with Rosuvastatin being superior followed by Atorvastatin and Simvastatin. In the present study statins reversed the histopathological changes in CCl<sub>4</sub> induced hepatotoxic models with Rosuvastatin being superior to other statins.

**HS-3031**

**Original Research**

**Poster Presentation**

**Title:** Anaerobes in Chronic Osteomyelitis: The Path Less Trodden

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## Abstract

Chronic osteomyelitis is a relapsing persistent low grade inflammation of bone caused by various infectious agents. The present study was

conducted over a period of two years on specimens received from cases of chronic osteomyelitis to determine the frequency of isolation of aerobic and anaerobic bacteria and to analyze their antimicrobial susceptibility pattern. The received specimens were processed for Gram stain, aerobic and anaerobic culture and isolates were identified as per standard techniques. A total of 204 specimens were received and significant growth was observed in 102 specimens. Aerobic growth was observed in 60.8% patients and anaerobic growth was seen in 39.2% patients. Resistance to metronidazole & clindamycin was observed in 6.7% and 30% of the anaerobic isolates. None of the anaerobic isolates were resistant to meropenem. Significant proportion of anaerobic isolates were found to be resistant to commonly used empirical drugs like clindamycin, thus necessitating need for routine anti-anaerobic susceptibility testing in Microbiology laboratories.

**HS-3032**

**Original Research**

**Poster Presentation**

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**Title:** Clinical, Microbiological & Molecular Characteristics Of *Bacteroides Fragilis* Isolates From Clinical Specimens: A Hospital Based Study

**Authors:** Akshita Gupta, Kiran Chawla, Padmaja A. Shenoy and Ajay Kumar

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### **Abstract**

*Bacteroides fragilis* group are opportunistic anaerobic human pathogens and are frequently involved in intraabdominal infections, various intracavitary abscesses, complicated skin/soft tissue wounds and blood stream infections. Resistance among anaerobes has been reported on a steady rise over the years, with even reports of carbapenem resistance. Considering the tedious culture technique and long turnaround time, anaerobic cultures continue to be often overlooked. Therefore, study of resistance patterns and genetic determinants can help provide valuable information to local and regional data among such organisms. This study attempts to highlight resistance patterns in a tertiary care hospital among clinical samples isolating *Bacteroides fragilis* isolates.

**Title:** Analysis of blood donor deferral pattern in a tertiary care center with emphasis on overlooked deferral cause in India.

**Authors:** Dhivya Kandasamy, Shamee Shastry, Chenna Deepika, Ganesh Mohan

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**Abstract**

Blood donor deferral results in loss of potential, motivated blood donors and in turn affects the availability of blood for needy patients. Review of donor deferral reasons is essential to develop strategies for donor recruitment and also to retain existing donor pool. Hence retrospective analysis of pre-donation deferral record of voluntary whole blood donors from January 2014 to December 2018 was planned wherein categorization of donor deferral was done with respect to stage of deferral in pre-donation screening process. This includes stage 1 – Evaluation of Donor History Questionnaire (DHQ), Stage 2 – Brief Medical examination, Stage 3 – Hemoglobin estimation and Stage 4- prior to phlebotomy. This study intends to address the frequency and causes of donor deferral at each stage including an unexplored deferral reason like high hemoglobin in India and highlights the need for rational and evidence based approach towards these deferrals.

**Title:** A retrospective study of serious adverse drug reactions and associated risk factors in a tertiary care hospital

**Authors:** Sadhana N Holla, Smita S, Mohit G, Madhurima H, Harish T

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## Abstract

Drugs that save lives can also cause adverse drug reactions (ADR). The criteria for a serious adverse drug reaction have been specified by the WHO and include any untoward medical occurrence at any dose that results in death, is life-threatening, requires or prolongs hospitalization, or results in persistent or significant disability or incapacity. Serious adverse drug reactions cause physical, psychological and economic burden to patients and society. This study was undertaken to understand serious ADRs in a tertiary care hospital and risk factors associated with it.

The serious ADRs that occurred over a one-year period were assessed. The patient demographics, serious adverse drug reactions, suspect drug, action taken and the outcome was observed. The predictability and causality of the reaction was assessed. Chi-square test was applied for observing relationships of predisposing factors for serious ADRs. Out of a total of 984 reported adverse drug reactions, 94 (9.55%) were serious. Hematological disorders (41.05%) were the common serious ADRs followed by electrolyte disturbances (18.94%). Anticancer agents were the suspect drugs for majority of them. Most of the serious ADRs were provided specific treatment along with continuation of suspect drug for 35 (37.23%) patients and stoppage of suspect drug for 30 (31.91%) patients. Serious ADRs contributed to 39 (0.05%) admissions in the hospital. Recovery occurred in 97.87% of the patients. The causality was possible in 86 (91.48 %) and probable in 8 (8.51%) of the serious adverse drug reactions. Of the total serious ADRs, only 13 (11.57%) were non-predictable, rest of the 81 (88.42%) reactions were predictable. Males, patients even with a single concomitant disease and those with more than 2 concomitant medications were at increased risk ( $p < 0.05$ ) for developing serious ADRs. Serious ADRs pose a significant problem in health care. Measures should be taken to detect and treat them at the earliest to reduce suffering of the patient, improve quality of life and decrease the cost of healthcare.

**HS-3035**

**Original Research**

**Poster Presentation**

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**Title:** A preliminary study to assess effect of ramipril on rosuvastatin induced myopathy in rats

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### **Abstract**

Statins are known to produce myopathy by various mechanism. An increase in muscle atrophy gene (atrogin) expression, oxidative stress and changes in mitochondrial content and/or function have been proposed to play a role. Inhibition of angiotensin II downregulates atrogin and decreases oxidative stress. The study was carried out to evaluate the effect of ramipril on rosuvastatin induced myopathy in Sprague dawley rats. A total of 24 adult, male Sprague Dawley rats were divided into 4 groups, each having 6 rats. Group I received 2% gum acacia (10 mL/kg of body weight of rat). Groups II – IV received rosuvastatin 150 mg/kg. Groups III and IV received ramipril 1 mg/kg and 3 mg/kg respectively. All drugs were given orally daily for 10 days. Blood sample was collected on 10<sup>th</sup> day for creatine kinase (CK) estimation. Histopathology of soleus was done. Biochemical data was analysed by one way ANOVA followed by post hoc Tukey's test. There was a significant ( $p < 0.0001$ ) lowering of serum CK levels in rats treated with both ramipril and rosuvastatin as compared to rosuvastatin alone treated group. Rosuvastatin treated group showed loss of nuclei, inflammation, homogenization, and eosinophilic infiltration of soleus muscle. There was a dose dependent protective effect on histopathology with higher dose of ramipril showing almost normal architecture in the muscle. Ramipril reversed rosuvastatin induced biochemical changes but showed dose dependent attenuation of structural changes induced by rosuvastatin. Thus, ramipril has the potential to slow the development of statin induced myopathy.

**HS-3037**

**Original Research**

**Poster Presentation**

**Title:** Cognitive and behavioral effects of levetiracetam in juvenile rats

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### **Abstract**

Epilepsy is one of the common neurologic disorder in childhood. Levetiracetam (LEV) a newer anti-epileptic drug with unique action is used in localized and generalized epilepsies in children. Some short term studies have shown behavioral adverse effects with LEV but there is paucity of data with regard to this. Hence the objective of the study was to evaluate the effects of LEV on cognition and learned helplessness behavior in juvenile rats. LEV was administered orally in two different dose groups for 3 weeks to wistar rats starting from the 3rd postnatal week to 6th postnatal week. Cognitive function was evaluated by condition avoidance test Hebb-William Maze and learned helplessness behavior was evaluated by forced swim test. Statistical analysis was done by Kruskal Wallis test using SPSS Version 16.0. A value of  $P < 0.05$  was considered statistically significant. There was no significant difference in two doses of LEV treated group when compared to normal control in all the three test models. In conclusion levetiracetam treatment in juvenile rats did not show any adverse effect on cognition and behavior during adulthood.

**HS-3038**

**Original Research**

**Poster Presentation**

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**Title:** Micro-Raman spectroscopic analysis of optically trapped live erythrocytes in leptospirosis

**Authors:** Sanu Susan Jacob, Jijo Lukose, Santosh Chidangil, Pragna Rao, Prathap M Baby

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## Abstract

Leptospirosis is a zoonotic disease caused by pathogenic spirochetes of the genus *Leptospira*. Patients with leptospirosis can present a wide systemic spectrum of haematological manifestations, of which anemia is a serious one. Many leptospiral strains have been found to cause hemolysis. The focus of this study was to use Raman spectroscopy to analyze the biochemical composition of RBCs in this disease. To analyze the Raman spectra of red cells in leptospiral infection and compare them to those obtained from red cells of healthy volunteers. 4 ml anticoagulated blood samples were extracted from healthy volunteers (n=10) and patients infected with leptospirosis (n=20). Blood samples were centrifuged at 3000 rpm for 20 minutes. 10µl plasma, close to the hematocrit was taken and diluted in 1ml PBS, to obtain a solution of live red cells. With the Raman tweezers set-up, red cells were optically-immobilized and probed using a 785nm diode laser. The results were analyzed by principle component analysis and nonparametric tests of SPSS 15. Principle component analysis of the spectral data from red cells showed marked changes in the PC1 and PC2 values between the healthy and leptospirosis groups. The PC1 and PC2 values between both groups also exhibited significant difference ( $p < 0.05$ ) by Kruskal Wallis test for nonparametric data. These findings suggest that the leptospiral infection does cause a change in the biochemical composition of red cells, and possibly could be one of the causes of hemolysis and anemia in aggravated states of leptospirosis. This study could pave way in understanding the behavior of red cells in zoonotic infections.

**HS-3039**

**Original Research**

**Poster Presentation**

**Title:** Goal-directed vs traditional approach to intraoperative fluid therapy during open major bowel surgery – Is there a difference?

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### **Abstract**

Mental health is the foundation for emotions, thinking, communication, learning, resilience and self-esteem. Globally around 1.1 billion people suffer from mental disorders. Mental disorders are common across the world. Studies have shown that burden of mental illness among the youth is on the peak. Mental health Literacy (MHL) is the most effective intervention to pause the morbidity and mortality associated with mental illness. Self-administered mental health literacy questionnaire was used to obtain the data from undergraduate students. Study results shows that depression is recognised by 5(15.62%) whereas no one has identified anxiety. Mental health Literacy (MHL) is the most effective intervention to pause the morbidity and mortality associated with mental illness.

**HS-3042**

**Original Research**

**Poster Presentation**

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**Title:** Conjunctival Myxoma: A Rare Case Report

**Authors:** Dr. Shubhika Sachdeva, Dr. Bhavna Nayal

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### **Abstract**

Ocular Myxomas are rare benign presenting as slow-growing, painless, well-circumscribed masses. These may be present in isolation or as a part of a syndrome. We present a 67 year old lady who presented with a conjunctival cystic swelling. No systemic abnormalities were detected. Histopathological examination revealed a hypocellular tumor composed of stellate- and spindle-shaped cells in a mucin rich myxoid stroma.

**HS-3049**

**Original Research**

**Poster Presentation**

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**Title:** Micro-Raman Spectroscopic Analysis of Optically Trapped Live Erythrocytes in Dengue

**Authors:** Prathap M Baby, Sanu Susan Jacob, Jijo Lukose, Santosh Chidangil, Pragna Rao

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### **ABSTRACT**

Dengue is a mosquito-borne viral disease prevalent in the tropical world and anemia is a serious hematological dysfunction in this infection. Although many studies have established the link of the disease to thrombocytopenia and blood loss, there is a dearth in knowledge of the direct effect of the infection on red cells. We hypothesize that the dengue virus infection induces biochemical alterations in the RBCs, although evidence of this is lacking. The focus of this study was to use Raman spectroscopy to analyze the biochemical composition of RBCs in dengue infection. To analyze the Raman spectra of red cells in dengue infection and compare them to those obtained from red cells of healthy volunteers. 4 ml anticoagulated blood samples were taken from healthy volunteers (n=10) and patients infected with dengue (n=20). Blood samples were centrifuged at 3000 rpm for 20 minutes. 10 $\mu$ l plasma, close to the hematocrit was taken and diluted in 1ml phosphate buffered saline, to obtain a solution of live red cells. With the Raman tweezers set-up, red cells were optically-immobilized and probed using a 785nm diode laser. The results were analyzed by principle component analysis and non-parametric tests of SPSS 15. Principle component analysis of the spectral data from red cells showed marked changes in the PC1 and PC2 values between the healthy and dengue groups. The PC1 and PC2 values between both groups also exhibited significant difference ( $p < 0.05$ ) by Kruskal Wallis test for non-parametric data. These findings suggest that the dengue infection does cause a change in the biochemical composition of red cells, and possibly could be one of the causes of anemia in aggravated dengue infection. This study could pave way in understanding the behavior of red cells in viral infections.

**HS-3051**

**Original Research**

**Poster Presentation**

**Title:** *Corynebacterium striatum* causing Pneumonia: An emerging pathogen

**Authors:** Sunali, Akshita Gupta, Anupam berwal, Kiran chawla

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### **Abstract**

*Corynebacterium striatum* has always been considered a simple colonizer of skin and nasal mucosa. However, there are now increasing reports that suggest non-diphtheriae *Corynebacterium* as a possible pathogen where normal flora has been disturbed. The present case highlights the potential danger of non-diphtheriae *Corynebacterium striatum* presenting as pneumonia in a host undergoing chemo-radiotherapy.

## **Nursing**

**HS-4001**

**Original Research**

**Poster Presentation**

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**Title:** Effectiveness of Teaching Program on Adolescent Health Among Adolescent Girls in Selected Schools of Udupi District Karnataka.

**Authors:** Mrs. Anusuya V Prabhu, Dr. Mamatha Shivananda Pai, Mrs. Yashoda S, Mrs. Sangeetha Priyadarshini

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### **Abstract**

Adolescence is defined as a phase of life characterized by rapid physical growth and development, social and psychological changes and maturity, sexual maturity, experimentation, development of adult mental processes and a move from the earlier childhood socio-economic dependence towards relative independence. This is also the period of psychological transition from a child who has to live in a family to an adult who has to live in a society. Needs of the adolescents are very special and distinct. Objectives of the study were to assess the knowledge on adolescent health during adolescent period and to assess the effectiveness of teaching program among adolescent girls in experimental and control group. A quasi experimental study was conducted among 184 adolescent girls aged between 10-16 years at Udupi District Karnataka. Data were collected by using predesigned pretested questionnaire. Results of the study were majority of the adolescent girls had information regarding

adolescent health from their mother was 59 (64%) in control group and 55 (59%) in experimental group. Regarding the knowledge about menstruation, it was found that 64 (69%) and 66 (71%) and knowledge about menstrual hygiene, it was found that 66 (71%) and 66 (71%) in control and experimental group respectively. Pretest knowledge was assessed by administering the structured knowledge questionnaire. And it was found poor, 58 (63%) among control group and average 46 (50%) among experimental group. Independent t test was computed to check the effectiveness of teaching program. It was found to be effective  $p < (0.000)$ . Study concluded that family and school health services should be encouraged to improve both parental and adolescent health by enhancing parental and adolescent communication skills and by keeping parents informed about adolescent changes related to emerging social trends.

## Pharmaceutical Sciences

HS-5004

Original Research

Poster Presentation

**Title:** Novel thiazole substituted thiazolidin-4-ones: Synthesis and *in vitro* Anticancer Studies

**Authors:** Alex J, Jignesh A C, Jesil M and Angel T A

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### Abstract

Thiazoles and thiazolidin-4-ones are important pharmacodynamic heterocyclic scaffolds which have been reported to possess potent anti-inflammatory anticancer and antimicrobial properties. The combination of two pharmacophores on the same molecule popularly called as hybrid pharmacophore approach is a well-known approach for the designing of more active and effective drugs. In this approach the structural elements from two compounds that bind with high selectivity to their respective targets are combined and further substitution on these scaffolds may further enhance their activity. Therefore a novel series of fifteen thiazole substituted thiazolidin-4-ones were synthesized, characterized and evaluated for their *in vitro* anticancer properties. Among the fifteen thiazole substituted thiazolidin-4-ones screened for their *in vitro* cytotoxic effect on HeLa, HCT-116 and MCF-7 human cancer cell lines, most of the compounds exhibited  $IC_{50}$  values less than 50  $\mu\text{g/ml}$ . Against

HeLa cells compound 2-(4-chlorophenyl)-3-(4-phenylthiazol-2-yl) thiazolidin-4-one (AJ2) exhibited maximum cytotoxicity with IC<sub>50</sub> value of 8.5µg/ml. While against MCF-7 cells compound, 2-(4-methoxyphenyl)-3-(4-phenylthiazol-2-yl) thiazolidin-4-one (AJ9) exhibited maximum cytotoxicity with IC<sub>50</sub> value of 9µg/ml. The compound, 2-(4-fluorophenyl)-3-(4-phenylthiazol-2-yl) thiazolidin-4-one (AJ3) with IC<sub>50</sub> value of 19.5 µg/ml exhibited maximum cytotoxicity against HCT-116 cells. The most active compound AJ2 against HeLa cells exhibited apoptosis mediated cell death as confirmed by Hoechst staining studies. Thiazolidinones with fluoro, chloro, dichloro methoxy and ethoxy substitutions were found to be more cytotoxic than other thiazolidinones. These novel leads molecules can be further modified and screened to improve their anticancer activity.

**HS-5008**

**Original Research**

**Poster Presentation**

**Title:** Designing of Antitubercular Molecules: A Target and Ligand-Based Approach

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### **Abstract**

InhA is an enzyme involved in the fatty acid synthesis cycle of *Mycobacterium tuberculosis*. It is a validated target for tuberculosis and is the target of the most potent and first line antitubercular drug isoniazid. Available X-ray crystal structures of InhA and various potent inhibitors complexes were studied in detail. Based on the target site and structure of potent ligands a series of diphenyl ether derivatives were designed and evaluated in-silico and in-vitro for activity. The in-silico results corroborated the in-vitro findings.

**HS-5012**

**Original Research**

**Poster Presentation**

**Title:** In Silico Identification Of Phosphatase Domain Of TIGAR As Potential Binding Site For Small Molecule Inhibitors

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### **Abstract**

The protein TIGAR, has a role in cancer metabolism by blocking the glycolytic pathways thus helping the cells to accumulate the required macro molecular components and fueling the cancer growth. Therefore downregulation of TIGAR could be a potential strategy to tackle cancer. As the molecular mechanism leading to inhibition of glycolytic pathways in cancer by TIGAR is not understood, bioinformatics approach is used to study the active site features of the protein in order to access its structural parameters. From the similarity search it was evident that the protein is having the structural similarity with the PFK2 protein. Data that was generated from the alignment studies has shown that the phosphatase domain in the protein is conserved and it is similarly aligning with the reference protein. Thus the active site of TIGAR protein was identified by site map analysis using Schrödinger tool and docking of reference ligand to the identified binding site revealed the active site of TIGAR protein. As there are no reported evidence of chemical moieties to tackle with TIGAR, it is novel and will add valuable scientific information, if a certain molecule and its target can be identified using molecular docking approaches.

**HS-5013**

**Original Research**

**Poster Presentation**

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**Title:** Synthesize and evaluation of 3, 4-dihydropyrimidin-2(1H)

**Authors:** D.r. Harish Kumar, Bipasha Biswas, Chandni Gupta, B.S. Sanjana and Parag Raj Behura

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### **Abstract**

Biginelli reaction is a multicomponent reaction step it is an organic reaction between  $\beta$ -keto ester, an aryl aldehyde, and urea to synthesize 3, 4-dihydropyrimidin-2(1H) by solid phase synthesis. This reaction was performed using tertiary-butyl acetoacetate as the  $\beta$ -keto ester and

acidic conditions were maintained by using monochloroacetic acid as a catalyst. The progress of reaction was monitored by TLC by optimizing the ratios of suitable mobile phases. All the synthesized compounds were recrystallized using absolute ethanol. The structure and purity of synthesized compounds were characterized by spectral techniques like <sup>1</sup>H NMR, IR and Mass spectra. They were screened for antimicrobial activity against Gram positive bacteria (*Staphylococcus aureus*) and Gram-negative bacteria (*Escherichia coli*). Minimum inhibitory concentration (MIC) was determined by tube dilution method and the MIC of compounds were found to be >512 µg/mL.

**HS-5025**

**Original Research**

**Poster Presentation**

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**Title:** Formulation and Evaluation of Liposomal drug delivery for the Treatment of Rheumatoid Arthritis in Rats

**Authors:** Faby Raju, Akhilesh Dubey, Srinivas Hebbar<sup>2</sup> and Ravi GS

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### **Abstract**

Lornoxicam, a new nonsteroidal anti-inflammatory drug (NSAID) belongs to oxicam class which is effective in relieving symptoms of rheumatoid arthritis and for the management of other painful conditions. Lornoxicam is available in oral and parenteral formulations. Drug loaded liposome was formulated as stealth liposomes, conventional liposomes and coated conventional liposomes. PEGylated phospholipid-like MPEGDSPE was used to prepare stealth liposomes by thin-film hydration technique. Similarly, phospholipids and cholesterol were used to prepare conventional liposomes which was coated with a hydrophilic biocompatible polymer like chitosan. Physicochemical characteristics of the liposomes such as particle size, drug encapsulation efficiency were determined. Also, drug release and *in vivo* anti-inflammatory activity in rats were evaluated. The results showed that the presence of PEG on the surface of the liposomal carrier has been shown to extend blood-circulation time while reducing mononuclear phagocyte system uptake (stealth liposomes). *In vivo* study was carried out in rats for their antirheumatoid activity which showed that there was a significant reduction in edema volume in the rat group administered with the formulation.

**Title:** Investigation of the Effect of Penetration Enhancers in the Topical Delivery of Transfersomal gel of Adapalene for the treatment of Acne Vulgaris

**Authors:** Prathika Bhandary, Relma Lyna Furtado, Akhilesh Dubey<sup>3</sup> and Ravi G.S

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### Abstract

Many approaches have been proposed which enhances the stability of the vesicular systems such as liposomes, niosomes, transfersomes, etc. Among them, transfersomes provide a flexible delivery system which improves the stability as well as the potential which is to be used for a wide range of active compounds. Hence, transfersomes are one of the novel vesicular systems that are more elastic than other vesicular systems. The study is mainly used to investigate whether the adapalene loaded transfersomes will be effective by the addition of penetration enhancers on the topical delivery and compared. Transfersomes is formulated by a reverse phase evaporation method and optimized by Design of Experiment (DoE) approach. The formulation is evaluated using parameters such as the Particle size, PDI, Zeta potential, Entrapment efficiency, *in vitro* characterization such as TEM, turbidity measurement and deformability study. The formulation is then incorporated into a suitable gel and evaluated for characteristics such as the pH, viscosity, spreadability, extrudability, homogeneity, etc. After the addition of permeation enhancers to transfersomal gel, *in vitro* permeation, *ex vivo* permeation, flux study, *in vitro* drug release study and skin irritation study is conducted and also compared. The study has proved that the addition of a permeation enhancers such as peppermint oil to the transfersomal formulation improved the release, can modify the barrier to penetration in the skin and shows better *in vitro* release and *ex vivo* permeation as compared to other formulations containing different permeation enhancers. There is no skin irritation when applied the prepared formulation to skin. Hence, the developed formulation can enhance the topical penetration of drug and thereby improves the therapy.

## ABSTRACTS: MANAGEMENT SCIENCES

### Banking and Commerce

**MS-1008**

**Original Research**

**Poster Presentation**

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**Title:** Women in Entrepreneurship Development

**Authors:** Jayalakshmi Sankar

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#### **Abstract**

Women Entrepreneurs are the ones who organize and manage an enterprise, especially a business. Women entrepreneurship has been recognized as an important source of economic growth. Drawing on the literature examining women in the world of business, this article explores theoretical framework for analyzing the role of women in entrepreneurship development. This article also provides how women integrate social relations and set their business goals. By critically examining the operationalization of the organizational goals, the development impacts women owned organizations and their opportunities in the entrepreneurial world are identified and discussed.

**MS-1019**

**Original Research**

**Poster Presentation**

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**Title:** Community Health Schemes - Ayushman Bharat: A Game Changer in Health Care Industry

**Authors:** N.S. Prakash and Dr. Raghavendra

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## Abstract

India has been witnessing a number of serious concerns in health care sector. More particularly, over 80% of the population does not have access to health care cover or health insurance. The situation is relatively worse amongst the people in rural areas. 62% of the healthcare expenses are borne by individuals themselves and out of pocket expenses is as high as 90% for individuals. Consequently, the people are forced to get in to unfortunate debt trap with huge negative impact on family's financial or economic status. The number of community health care schemes initiated by various state governments and/or central government have done very little to address this issue. The Ayushman Bharat scheme, introduced as Prime Minister's Jan Arogya Yojana (PM-JAY) through its National Health Protection Mission is deemed to be extremely comprehensive and revolutionary in many aspects. Introduced with a huge ambition of reaching 10.74 crore families, it is expected to cover 50 crore people, translating into covering of 40% of the population. The scheme is projected as one of biggest schemes globally in terms of number of beneficiaries intended to be covered.

## Humanities and Social Sciences

**MS-5002**

**Original Research**

**Poster Presentation**

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**Title:** Self-Esteem and Hope among HIV Positive adolescents

**Authors:** Rosa Nimmy Mathew

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## Abstract

The aim of the present study was to assess the level of self-esteem and Hope among HIV positive Adolescents across gender. The researcher considered perinatally infected Adolescent boys and girls who are HIV Positive, currently living in a HIV care and support centre. The permission for the study was taken from the organisation head of the respective HIV care and support Home. The study adopts a quasi-experimental non-equivalent control group design. A purposive sample of 98 adolescent boys and girls were selected. It was hypothesized that there is no difference in the level of hope and Self-esteem among boys and girls. The participants

were assessed using Rosenberg’s Self Esteem Scale and Children’s Hope Scale. The results were analyzed using t for independent means. The obtained results reveal that there is low self-esteem among adolescent with HIV Positive regardless of their gender. The level of hope is also low amidst the adolescent with HIV positive.

**MS-5017**

**Original Research**

**Poster Presentation**

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**Title:** Acceptance of queer/ LGBTQ in today’s workplace

**Authors:** Rahul Choubey and Chhavi Singh

**Abstract**

Homosexuality has been legalised in India, despite this homosexuality is not openly discussed. Despite this development in India it is still considered as a threat and a taboo in the local community. Despite a considerable population of homosexual people are becoming more vocal, most people in India, from across socio-economic strata, claim to not know any lesbian, gay, bisexual or transgender (LGBTQ) individuals. As a result, homophobia and

Misinformation is widespread and LGBT individuals are often disempowered politically, economically, and socially. Nevertheless because of extensive marches and activities the social attitudes of people in progressing towards acceptance. The necessity of inclusive workplaces of LGBTQ employee is inevitable and many companies are trying to go LGBTQ inclusive. This paper examines the acceptance of queer community in the workplace despite the company’s policies; are the employees open with working with an uncloseted LGBTQ employee. This paper also examines which sector and field is likely to accept LGBTQ employees.

**Management**

**MS-6012**

**Original Research**

**Poster Presentation**

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**Title:** Waiting time in Trauma Care Unit: Investigating the causes and solutions

**Authors:** Dr Hafza Abdul Kareem , Dr Suraj Francis Noronha

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### **Abstract**

**Purpose:** The purpose of this study is to critically analyse the length of stay of patients in Trauma and Emergency department (TEMED), and factors associated with prolonged length of stay. It also recommends solutions to improve efficiency of workflow in TEMED.

**Design/ Methodology/ Approach:** The study is a concurrent observational study conducted in May – June, 2019. A convenience sampling was done of patients who availed TEMED services in a tertiary care hospital. Three major areas of TEMED department were included in the study. Namely, blue (Trauma Triage) 33 cases; red (EMD ICU) 47 cases; and yellow (Emergency Triage) 84 cases. Waiting time of each patient was recorded and the median waiting time was used for analysis. The patient waiting time was classified as delay and no delay as per the NHS (UK) Standard.

**Findings:** It was observed that median time taken to discharge patients in blue area was found to be 3hr 15min (165min), 75% of patients achieved the standard triage target of 4 hrs. Whereas, in red/EMD ICU and yellow area, almost 50% of patients had prolonged length of stay with respect to standard targets of 24hr and 4hr respectively. The median time taken in red area was found to be 25hrs (1500min) and in yellow area was found to be 4hr 15min (225min). Factors associated with prolonged length of stay were mainly due to delay in cross consultations, investigations, bed availability for admission and protocol related. Prolonged length of stay in TEMED leads to overcrowding, which can have a negative impact on patient outcome, as well as TEMED operations.

**Originality/Value:** Suitable recommendations are proposed, based on the protocol developed by the Government of Kerala. Other recommendations are also suggested to reduce the waiting time in the TEMED.

**MS-6013**

**Original Research**

**Poster Presentation**

**Title:** Virtual Consultation to bridge the gap of reach: Telemedicine practices at ATHS

**Authors:** Vadapalli Kavya Sri and Dr Santosh Birur

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### **Abstract**

Telemedicine and Telehealth are innovative ways to perform virtual consultation especially to reach out the poor population in rural areas, which are literally cut-off from the main stream healthcare providers. Technology can be leveraged to enhance the health care system delivery and quality of care using tele-medicine and tele-health facilities. This is done by integrating medical care with technology. Apollo **Tele-Health Services (ATHS)** has implemented this impeccably. This paper illustrates how ATHS is revolutionizing and redesigning the access to healthcare system in India. It also discusses how the beneficiaries and the service provider of one region can consult the doctors of the other regions without any physical travel, thereby, helping them bridge the gap and cater to the needs of the relevant stakeholders. The study is outcome of a short-term organizational engagement as part of mandatory academic requirement. The data was collected using direct personal observation and *netnography* methods to accomplish the objective of study. At ATHS the Telemedicine outreach was achieved through Information Communication Technology (ICT), Device integration, Med-Integra Software as the basic elements in methodology to connect through satellite to accelerate and reduce the gap between the demand and supply without any intervention of human resources physically. The technology used at ATHS also facilitates rapid access to remote medical expertise through telecommunication and information technology. The system, if it is extended across the country, would be addressing the issue of patients in the inaccessible terrains and far-off regions.

**MS-6014**

**Original Research**

**Poster Presentation**

**Title:** A study on effectiveness of selected option trading strategies in Indian Derivatives segment, with specific reference to Banking sector

**Authors:** Mr. Shivaprasad S.P , Dr. Raghavendra <sup>2</sup> and Mr. Rajeev Math <sup>3</sup>

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## **Abstract**

Financial derivatives are those instruments whose value is derived from other underlying assets, such as equity shares, bond, metals, commodities, currency, interest rates etc. Derivative instruments include forwards, futures, options and swaps.

Trading in Futures and Options is done through a recognised stock exchange. These instruments are used by both speculators, arbitrageurs and as a hedging instrument. Through these contracts, it is possible to transfer risk from those who are attempting to avoid risk to those who are willing to accept it, for a consideration. Option contracts give the holder the right but not the obligation to buy/sell the underlying asset, against the payment of premium. Trading in option contracts has been gaining momentum in the recent years. Investors employ a host of strategies for meeting their desired outcomes- speculation, arbitrage or hedging. We examine the applicability of various option trading strategies in the Indian derivatives market and analyse whether these strategies are effective in meeting the desired outcome. The study considers a few selected option strategies including covered call, straddle, strangle and butterfly. We investigate the performance of these selected strategies in both volatile and neutral market conditions by applying it to banking stocks that are part of NSE NIFTY index. The study is expected to highlight the adoptability of these strategies by Indian investors during their portfolio creation.

## **Mass Communication**

**MS-7020**

**Original Research**

**Poster Presentation**

**Title:** Influence of commercial advertisements in mass media on awareness about health: A study

**Authors:** Dr. Sowmya K B, Guruprasad T N

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## **Abstract**

It is demonstrated that media is more strong than ever in the modern world. Many study kinds have already shown that advertising campaigns can have a positive impact on people's lifestyle in society. Through the

current strong mass media such as television, radio or newspapers, excellent numbers of individuals can efficiently achieve a message. For the same reason, for any such campaigns, mass media is given priority. The mass media format is altered due to the blooming social media. The contribution of media commercial advertisements to the development of a healthy community and healthy conduct was discussed in this research paper. In addition to severe social advertisements such as tobacco hazard, smoking, alcohol drinking, road safety, cancer prevention, eye donation, awareness of organ donation is developed about health even through commercial advertisements. It is impossible to ignore the contribution of commercial advertisements to a good community. By reaching a big amount of individuals at a moment, mass media not only produces beneficial growth, but also motivates such change. This research article analyzes that it may not be possible to see beneficial trends once a sudden. But some changes in society can be brought about by investing in the media campaign. Similar advertising campaigns have been enhanced by the forum even supplied by social media. In this respect, the research article studies the impact of telecasted commercial advertising on good conduct in mass media.

## ABSTRACTS: TECHNICAL SCIENCES

### Architecture and Design

**TS-1002**

**Original Research**

**Poster Presentation**

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**Title:** Guidelines for enhancing saw mill environment: an exploratory study on design parameters

**Authors:** Meril Rose Thomas

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#### **Abstract**

Wood is the second most widely used natural material for construction. Due to its versatile nature, the material can be used for manufacturing both indoor and outdoor products. Irrespective of whether it's a hardwood or a softwood, to reach certain standard of usage, they have to be treated and sawed according to the requirement. The space (factory) which deals with several wood processing and sawing activities are called as saw mill. Although wood has great history of being used in the industry, the condition in the space processing it and the hazardous condition faced by the workers are not taken into account in most of the countries. The employees in such spaces would be mostly affected by respiratory problems due to the pile of sawdust and wood chips in the space and the people who take up the jobs would not be educated enough to know about its effects. Safety measures is another factor which is at stake due to the unorganized positioning/ segregation of the machineries and other elements. Case studies conducted in two different regions holds as a foundation to investigate various activities, collecting data on dimensions involved and planning various elements of space making. Several parameters focusing on the air quality, clearance and safety are drawn to analyze the space. Furthermore, the study would throw light on the

conditions of saw mill and would make a notable difference in the health state of saw mill workers to put forward some basic guidelines which has to be followed in a saw mill.

**TS-1006**

**Original Research**

**Poster Presentation**

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**Title:** A study on walkability attributes influencing a commuter's choice of walking the last mile at metro stations

**Authors:** Shubhra Sharma, Amit Kinjawadekar

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### **Abstract**

The study aims to investigate the factors of the pedestrian environment that may influence the commuter's choice of opting for "walk" as the last mile choice. The first- and last-mile problem plays as an obstacle in promoting ridership of public transit. One has to choose a feeder travel service to access the transit station or may even use an alternative direct travel mode like personal vehicles, resulting in the systemic decrease of accessibility for commuters in urban areas. Studies have shown that the overall walkability environment which is offered to metro rail commuters is crucial in the share of walk trips for last mile commute and the distance commuters are willing to walk. Well-provisioned first/last movement facilities with an understanding of walkability directly influence the level of service and connectivity of a transportation network. This paper is based on a study of metro users surveyed across selected stations of Bangalore Metro. A parallel study will be conducted to audit the pedestrian environment within the catchment area around each station. The study aims to analyse commuters' willingness to walk, identify parameters that influence walking environment and provide an index to measure the influence of each parameter on the commuter's choice to walk. Here we show, walking as a Last Mile Connectivity (LMC) choice that needs to be promoted through enhanced user experience in absence of which a significant amount of last mile travel will take place through unsustainable mechanized modes.

**Title:** Study of interactive spaces in the streets of a temple precinct: A case study of Udupi SriKrishna Mutt

**Authors:** Shreya S and Trvikram T N

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### **Abstract**

Streets form the backbone of any city and streets with heritage value more so as they carry the roots of culture and heritage. Human history reeks of interaction with one another at various levels, most of which is being lost in the fast moving urban and technologically advanced world. Majority of these interactions were associated with religious precincts and trade areas. These spaces became central hubs that attracted mass population, giving them opportunities to engage in various cultural, festive, political and social activities. Number of such religious precincts along with a commercial setup that develops in association with these precincts can be identified in our country. The commercial development around these places have a typical character that advocates the history, heritage and culture of those areas. One such temple precinct is the Udupi Sri Krishna Mutt. This paper aims at studying the various streets in the temple precinct of Udupi and identifying the different layers of interaction that take place there along with the spaces that caters to it. The paper is an ongoing study and the results of which is expected to shed light on the design elements that effect these interactions in a positive or negative manner and eventually draw conclusions as to what can or cannot be incorporated in the design of public spaces in modern times that will also remind us of our traditional and cultural roots.

**Title:** Biophilic Designs Patterns for Nature Connectedness and Sustainability in School Buildings

**Authors:** Sonali Walimbe and Nandineni Ramadevi

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## Abstract

Children are the most vulnerable beings of our society. The environments in which they grow, learn, and play have long lasting impression on their minds. A school going child tends to spend around 6-8 hours a day in his/her school continuously interacting with its physical environment. With the increasing technology and modern learning techniques, children are forced to spend most of their time in their enclosed classrooms. Thus, reducing the opportunities to play and learn in outdoor settings of the school. This confinement to the indoors can be seen as one of the reasons that children have lost appreciation of nature around them, if continued in their early years, may lead to biophobia, an aversion towards nature. This aversion towards nature increases concern for understanding environmental decline amongst children. As proposed by biologist E.O Wilson, Biophilia is the integral human inclination to connect with nature which continues to be critical to people's physical and mental health and wellbeing even in this modern world. Biophilic design enhances human well-being by fostering connections between people and nature in the modern built environment. Through literature exploration the poster focuses on the need for creating interconnection between children and the built environment of schools and documents the biophilic design patterns that enhance nature connectedness in children and also help in designing sustainable school buildings.

**TS-1010**

**Original Research**

**Poster Presentation**

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**Title:** Understanding the Islamic Architectural Style of Mosque in South Coastal Karnataka: A Case of Masjid Zeenath Baksh

**Authors:** Samad Ahmed Husain

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## Abstract

Islam came in India in 6th Century. The Arab merchants arrived in Karnataka and Kerala in 7th century due to trade in spices. They were sailors who came from different parts of Jordan, Yemen, Persia and Saudi Arabia. Their mode of transport was a *Dhow*<sup>1</sup>, in which they travelled across the Indian Ocean. There traders bought with them coffee and paper

to be sold in Indian markets. Since the Dhow was dependent on wind, these traders were forced to wait until upwind started so that they could return back. Thus, the settlement emerged in the important mercantile town of Mangalore during 8th – 9th century. Commercial significance of the settlement was large scale export and organized trading activities. The account of foreign traveler like *Ibn Battuta* 2 told how *Manjarur*3 was a flourishing trade Centre under Vijayanagara rule from 14th century to 17th century. The Beary or Byari is one of the first Muslim community to settle in coastal Dakshina Kannada. They are one of the earliest Muslim inhabitants of India, with history of more than 1350 years. *Belye Palli* 4, presently known as Masjid Zeenath Baksh was built in 644 A.D. by Malik Deenar, disciple of Prophet Mohammad. The mosque was built entirely of wood. It was later renovated in 17th century by king Tipu Sultan, who named the mosque after his daughter Zeenath Baksh. The style of architecture that evolved due to fusion of two different communities and cultures gave rise to a new hybrid style of architecture. This style portrayed how Islamic elements were blended with the local style of architecture and culture of South Canara.

**TS-1011**

**Original Research**

**Poster Presentation**

**Title:** Analyzing the significance of water bodies in the arid region of Gujarat through a Historic study of stepwells

**Authors:** Haripriya Bhamidipati

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### **Abstract**

Water bodies in India are fast disappearing due to drought situations and water shortage. Civilizations in the past have built their cities and villages near rivers, streams, lakes or other water sources throughout the historical process. Traditions and technology of constructing water resources like wells, tanks, ponds and stepwells as a source of freshwater have been in use in the Indian sub-continent from the Harappan times. The one of a kind structure and efficient way to deal with underground water as characterized by the stepwells is significant and intriguing inside the Indian setting. Water wells have been playing a pivotal role in the architectural history of semi-arid regions. The paper targets to

study these age-old water conservation strategies and learn how we can incorporate some of these ideas for community-based water-harvests. Especially in critically draught driven areas like that of Gujarat which also possess issues of scanty rainfall and drylands.

**TS-1013**

**Original Research**

**Poster Presentation**

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**Title:** Factors affecting the evolution of building typologies of commercial entities in the surrounding of temple prescient

**Authors:** Lakshmi Nymisha Gand Trvikram T N

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**Abstract**

The growth and change have been variable over decades in the commercial sector, which has a major impact on the built structure and its typologies. The paper looks into factors that have affected in the transformations of the commercial building typologies. As the demand increased, unfolding of the spaces took place in vertical as well as horizontal forms and abandoning of the old typologies. Different context tends to unfold different typologies due to varied factors this paper focuses on the factors that lead to change in the commercial typologies of shops leading towards Udupi Krishna mutt temple prescient.

**TS-1015**

**Original Research**

**Poster Presentation**

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**Title:** A Study of architectural elements as cues for Wayfinding in Autism Centers for the Autistic children

**Authors:** Shreya Agrawal and Nandineni Rama Devi

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**Abstract**

Autism is a complex neurobehavioral condition, which affects the overall nervous system of the affected individual. In general, autistic children find difficulty in communicating, interacting and developing a language for speaking. Their behavior is observed to be rigid and repetitive. Also,

children with autism face problems in navigating through simple and everyday spaces too and thus become dependent on their caretakers for finding their way to reach the required destinations. However, losing spatial orientation can easily cause confusion and distress. Therefore, wayfinding conveniences play an important role in the overall development of the autistic child. Hence, while designing spaces for the autistic children, architectural elements can be used as cues to help them in navigating and finding their way easily. Thus, understanding the association of architectural elements with wayfinding can help in a user-friendly design for the autistic. Such designs help in improving the navigational skills and give a sense of independence to the children with autism. This paper addresses the issues of wayfinding in the autistic with respect to autism centers and recommends the guidelines with respect to design of centers facilitating wayfinding with the appropriate use of architectural elements as cues. The data was collected from two autistic centers i.e. Asare at Manipal and Arivu, Early Intervention Centre, Mangalore. Observations were conducted in the above centers to see and understand the interactions and use of the architectural elements for wayfinding by the autistic children. Additionally, interviews were conducted with the parents, caretakers, psychologists and therapists to complement the above data. On analysis it was found that different architectural elements facilitate wayfinding in children with autism. Hence the recommendations aid in designing autism friendly spaces that have a potential to enhance their lives.

**TS-1021**

**Original Research**

**Poster Presentation**

**Title:** Seeking lost layers –A case of single screen cinema talkies Kalpana theatre,Udupi

**Authors:** Madhuri Muralidharan

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### **Abstract**

Cinema has entered as novel method of articulation. Architectural building related to cinema also thus turned into an integral part. Cinema talkies were buildings with different function when compared to other buildings thus they were differently built. Watching cinema turned into an event

and the built space made it grand. The vast majority motion picture talkies were huge buildings. Beyond entertainment they became a place to relax and socialize. They tend to mark development and urbanization of a place. These buildings became milestones .They brought a new architectural landscape the space they exist. Thus cinema talkies have a major role in creating an image to a space. This paper along these line, study the need of conservation of single screen talkies and the challenges faced during this process taking the case study of Kalpana theatre in Udupi.

## **Engineering and Technology**

**TS-2003**

**Original Research**

**Poster Presentation**

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**Title:** Automatic Detection of Malignant Images in Effusion Cytology

**Authors:** Shajahan Aboobacker, Deepu Vijayasenana, Sumam David, Pooja K. Suresh and Saraswathy Sreeram

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### **Abstract**

The excessive accumulation of pleural fluid is known as pleural effusion. Pleural effusion may be due to various infections or cancer. The cytologists visually examine the microscopic images to detect the malignant cells. The process is time consuming, and results differ between cytologists. Considerable research is happening towards the automation of the process. We propose an integrated approach based on deep learning, whereby the network learns directly to detect the malignant cells. U-Net architecture is used to learn the malignant and benign cells from the images and to detect the images that contain malignant cells. The model gives a precision of 0.96, recall of 0.96, and specificity of 0.97. The AUC (area under the curve) of the ROC curve is 0.97. The model can be potentially used as a screening tool and has a malignant cell detection rate of 0.96 with a low false alarm rate of 0.03.

**Title:** Automatic Evaluation of Ki-67 index using Deep Learning Approach

**Authors:** Lakshmi S, Deepu Vijayasenana, Sumam David, Saraswathy Sreeram and Pooja Suresh

**Author's Affiliations:** Department of Electronics and Communication Engineering, National Institute of Technology Karnataka, Surathkal, Mangalore - 575025, INDIA, Department of Pathology, Kasturba Medical College Mangalore, Manipal Academy of Higher Education, Manipal, Mangalore - 575001 INDIA

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### **Abstract**

Ki-67 labeling index is a widely used biomarker for the diagnosis and monitoring of cancer. Many automated techniques have been proposed for evaluating Ki-67 index. In this work, we introduce an integrated deep learning based approach. We use MobileUnet model for segmentation and classification and connected component based algorithm for the estimation of Ki-67 index in bladder cancer cases. The average F1 score is 0.92 and dice score is 0.96. The mean absolute error in the evaluated Ki-67 index is 2.1. We also explore possible pre-processing steps to generalize the segmentation model to at least one another type of cancer. Histogram matching and re-sizing improve the performance in breast cancer data by 12% in F1 score and 8 % in dice score.

**Title:** Usage of heat sinks in electronic components: A review

**Authors:** Naomon Khan and Ajay CM

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### **Abstract**

In the electronic industries, due to rapid increasing power ratings, higher heat dissipation from various packages, integrated chips, transistors and various other electronic components alongside continued miniaturization, there is a major need to carry out complex thermal management. One

of the most important components to achieve it is the Heat sink. The performance of heat sink is again based on different parameters like fin density, fin geometry, behavior of fins under different modes of convection, material used, shape and configuration. Micro pin finned heat sink with three shapes (square, triangular and circular) alongside unfinned micro heat sink with phase change materials of different types and configurations. At different ambient temperatures, n-octadecane and RT44 have been used alongside air in heat sink. Enhancement in cooling seen as compared to conventional methods. But selection of phase change materials based on melting temperature [1]. Fin or pin-fin type passive heat sinks sometimes cannot achieve comparable heat sink performance with comparable volume. Hence, development of bonded heat sink is an alternative and studies showed the variation of heat sinking capacity with respect to variation in parameter like fin thickness, fin density. [2] designed a reduced form factor passive heat sink. It was found out that when lighter materials with higher thermal conductivity showed increase in specific power as in comparison to usage of copper as heat sink fin material. When a component is scaled down to increase speed of data processing and power density, heat dissipation increases. [3] The model development of heat sink and multi objective using particle swarm optimization were explored for the searching of optimal dimensions for radial plate fin heat sink design. Reduction in area along with increased heat dissipation was observed.

Heat dissipation takes place via conduction from base plate to heat sink through fins and then goes to the ambient air by convection. [4] carried out a comparative study of four heat sinks configuration with different fin profiles using finite element method. The four designs used included: two parallel plate fins (model 1 and model 2), plate fin heat sink with elliptical pins between plate fins, staggered pin fins which composed square and circular fins. Each of these were compared using Aluminum and Copper materials and then compared with Graphite-metal which exhibits good anisotropic thermal conductivity. Thermal resistance was analyzed for a temperature input of 60°C. They tried finding out the best shape of heat sink with lower mass and thermal resistance. It was found out that Graphite-metal heat sink provided lowest thermal resistance and for the shape which consisted of elliptical pin fins. [5] determined the thermal resistance of copper and aluminum heat sink in a thermoelectric pump.

It's known that for the better performance of the Peltier module, the heat generated on the hotter side must be dissipated using components like heat sink. Considering the number and height of fins, a comparison was made between aluminum and copper heat sinks. [6] carried out a study on heat spreading characteristics of an embedded heat pipe heat sink and to compare it with a heat sink with no heat pipe. It was to understand the placement effect of a heat dissipating source on a horizontally oriented heat sink. There a heater block was designed to represent a standard IGBT module size and was applied at three different locations on the base plate of heat sink. These locations were considered with respect to inlet air velocity direction, i.e. leading, middle and trailing edge. It was observed that performance of heat sink with embedded heat pipes was not affected by placement of heater block. Modelling of heat pipe with high conductivity solid core assumption was also compared the standard vapor core model.

Air jet impingement alongside surface enhancement techniques is a good method and comparable to liquid cooling [7]. Three rectangular pin fin heat sinks of different heights were adopted and its behavior under jet impingement was experimentally studied. The thermal resistances of these heat sinks related to Reynolds number and H/D were obtained. The results showed that thermal resistance decreased with Re and H/D, but this trend gets lesser significance as Re and H/D increase to certain value. It was found out that when Reynolds number was in the range of 3159~15798, the heat transfer coefficient reached around 500~1100 W/m<sup>2</sup>K. [8] carried out thermal performance evaluation of various heat sinks for air cooling like cell fin, extrusion fin and plain fin. Extrusion fin is very popular because it is inexpensive, but the surface availability for convective heat transfer is limited. Copper heat sinks were mounted to a component on the printed circuit board (PCB) which is cooled by the air with velocities 1.5, 2.5, 3.5 and 5.5 m/sec. To incorporate real board conditions the flow by-pass is also taken into consideration. Main objective was to obtain thermal resistance and heat transfer coefficient at various flow velocities. The heat sinks can be used along with forced convection if heat dissipation is higher. But in electronic industries most of them would be using techniques revolving around natural convection because it is cost effective.

**Title:** Optimization of transesterification reaction of waste cooking oil for biodiesel production by immobilized Lipase

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### Abstract

Waste cooking oil is a promising alternative for producing biodiesel because it is a cheaper raw material that also avoids the cost of waste product disposal and treatment . But ,these used frying oils have different properties from those of refined and crude vegetable oils. The presence of heat and water accelerates the hydrolysis of triglycerides and increases the content of free fatty acids (FFA) in the oil. Present investigation deals with the utilization of waste cooking oil (WCO) for the production of biodiesel using bio-support catalyst . Comparison of Magnetic nanoparticles and PVA sodium alginate immobilization based on the enzyme activity 15.81 micro/gm and 15.24 micro/gm . Therefore PVA Alginate method for Immobilization was carried out for Further optimizing using Full Factorial Design(FFD) for free lipase and immobilized lipase. The optimized parameters chosen were Methanol/WCO Ratio , Reaction time and Enzyme concentration .The final yield of FFD was analysed by Glycerol Assay which showed the reaction time and methanol to oil ratio were significant . Further studying the determining the kinetic parameters, temperature and pH stability, reusability and storage of the immobilized enzyme and free lipase. The biodiesel characterization based on acid value, saponification value, iodine value, cetane number, specific gravity, viscosity, cloud point, pour point and calorific value. Gas Chromatography (GC) analysis of synthesized biodiesel to be performed.

**Title:** Subtractive Resistomics approach to identify drug targets in MDR *Neisseria gonorrhoeae*

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### **Abstract**

*Neisseria gonorrhoeae* is a gram-negative diplococci bacteria and enteric pathogen resistant to multiple antibiotics. *N.gonorrhoeae*, is a bacterial pathogen responsible for gonorrhoeae and various other sequelae that tend to occur when asymptomatic infection ascends within the genital tract or disseminates to distal tissues. Global rates of gonorrhoeae continue to rise, facilitated by the emergence of broad spectrum antibiotic resistance that has recently been afforded the bacteria 'superbug' status. *N.gonorrhoeae* is exquisitely adapted to life in humans, having evolved novel strategies to succeed in their restricted mucosal niche. Identification of novel therapeutic targets to design vaccine is crucial to combat the *N.gonorrhoeae* pathogenicity.

**TS-2014**

**Original Research**

**Poster Presentation**

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**Title:** Novel marine bacteria with chitin deacetylase activity and its gene fingerprinting

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### **Abstract**

Chitin (C<sub>8</sub>H<sub>13</sub>O<sub>5</sub>N)<sub>n</sub>, is the second most abundant polymer available in nature after cellulose. Chitosan is derivative of chitin obtained by deacetylation. This deacetylation modification can be done either by chemical or enzymatic method. Chitin deacetylation (CDA) is an enzyme used for enzymatic deacetylation. In the present study CDA producing marine organisms were isolated and screened using novel receptor compound. The marine sample was collected from 12°48' N and 74°40'E at a depth of 12 m. The initial screening resulted in nine morphological different colonies which were screened for their CDA activity. Biochemical and molecular characterization of the highest yielding isolate (MS7) was performed. The results identified the isolate

MS7 as Bacillus aryabhatai. The CDA gene was retrieved from B. aryabhatai genome and the after homology modelling, the domain architecture was constructed. The BaCDA gene had a polysaccharide deacetylase domain with N-terminus signal peptide sequence. The activity profiling of CDA was made with glycol chitin as the substrate where the highest activity is observed after 72 h culture at 0.52U/mL.

**TS-2016**

**Original Research**

**Poster Presentation**

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**Title:** Software Development Life Cycle

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### **Abstract**

Software Development Life Cycle (also called Process Model) is a diagrammatic representation of software life cycle. It represents the phases through which a software is developed and maintained. The SDLC methodologies can be broadly classified into Traditional (Waterfall model, V-model etc.) and Conventional AGILE model. Software Development Life Cycle is divided into phases each of which produces deliverables to be used by next phase. SDLC starts with Feasibility analysis followed by Requirement Gathering and Analysis which aims to collect user requirements and analyze its validity and completeness. The Software Requirement Specification document drafted in this stage is used by the following Design phase to specify hardware and software requirements and design the system architecture. In the Coding phase developer uses the design document to implement various modules of the software. The code then undergoes Testing phase that analyzes output with respect to each input. The system is integrated and tested. After testing and bug fixing the system is Delivered to the customers who then give feedbacks. The Maintenance phase improves the functionality of software based on customer feedbacks. This research focuses on how SDLC methodologies are applied for different industrial and software development projects.

**Title:** Facial Gestures

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### **Abstract**

Charles Darwin wrote in his 1872 book, *The Expression of the Emotions in Man and Animals* that “facial expressions of emotion are universal, not learned differently in each culture.”

In our study, we provide a group of people with a set of pictures of antique pieces and analyse their reaction towards them by cataloguing and analysing their facial expressions.

There are six basic facial gestures:

1. Happy, which is associated with a sense of contentment, satisfaction and joy, and is characterized by a facial expression that causes someone to raise the corners of their mouth upwards.
2. Disgust, which is associated with things that are offending or revolting, and is characterized by a facial expression that causes someone to raise their upper lip, wrinkle their nose bridge, and raise their cheeks.
3. Anger, which is associated with a feeling ranging from minor irritation to intense rage, and is characterized by a facial expression that causes someone to lower their brows, press their lips together firmly, and bulge their eyes.
4. Fear, which is associated with a threatening or dangerous stimuli, and is characterized by a facial expression that causes someone to raise their brows, open their mouth slightly, and open their eyes in a manner that is wider than normal.
5. Surprise, which is associated with an unexpected event, and is characterized by facial expression that causes someone to arch their brows, open their eyes widely, and drop their jaw.
6. Sadness, which is associated with disadvantage, loss and helplessness, and is characterized by a facial expression that causes someone to lower the corners of their mouth, and raise the inner portion of their brows.

**Title:** Information Abuse in Cyber World

**Authors:** Dr. Srikanth Prabhu, Lakshmi Narayanan, Dhanya Sudhakaran  
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### Abstract

Information in cyber world is becoming more and more accessible to the public. Intended as a good purpose, however the consequences are just the opposite. This available information is abused by different users where personal data that involve privacy concerns and habits are collected and misused. Some of the information abuse can be clearly seen through online frauds and emails frauds and a few cases were studied to broaden the perspective. Frauds like phishing and spoofing make use of social engineering, that is, tactics to manipulate the human weaknesses to obtain their goal. The objective of the attacks isn't just on the access of the information system, may include monetary gains. Proper monitoring system where the information abuse could be minimized should be implemented across all the systems, catering to the concerns of the users.

**Title:** Face Recognition and Its Innumerable Applications

**Authors:** Dr. Srikanth Prabhu, Sanjana J, Riya Agarwal, Nitin Bhoopal

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### Abstract

Facial Features tracking is a fundamental problem in computer vision due to its wide range of applications in psychological facial expression analysis and human computer interfaces. This means that regardless of language and cultural barriers, there will always be a set of fundamental facial expressions that people assess and communicate with. After extensive research, it is now generally agreed that humans share seven facial expressions that reflect the experiencing of fundamental emotions.

These fundamental emotions are anger, contempt, disgust, fear, happiness, sadness, and surprise. Unless a person actively suppresses their expressions, examining a person's face can be one method of effectively discerning their genuine mood and reactions. So using this we can basically be able to detect if a particular age group prefer some product. For our basis, we will take children in the age of 5 to 10, as they tend to be the most expressive. And we can use their emotions and expressions to determine if a particular product is going to be a success or not. To determine this, we need to first detect the face and then detect the facial expressions and gestures emoted by the face. So for this we require face recognition principles. Face recognition technology is a combination of various other technologies and their features and characteristics makes face recognition a better performer depending upon the application. Face recognition works under three phases- Detection, Extraction and Recognition. Feature extraction describes the relevant shape information contained in a pattern so that the task of classifying the pattern is made easy by a formal procedure. The main goal of feature extraction is to obtain the most relevant information from the original data and represent that information in a lower dimensionality space. Transforming the input data into the set of features is called feature extraction. The facial feature detection techniques aim to extract specific features such as, pupil, eye corners, nostrils, corners of lips, etc. Major applications of face detection consist of topics such as, face recognition and human emotion analysis. Human emotion analysis is a topic which is going to take up the most of our focus as that's what is the key to our aim and experiment. And using this we can reach a conclusion as to whether a certain product is preferred by a certain age-group and plot our results to have a comparative analytical study.

**TS-2020**

**Original Research**

**Poster Presentation**

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**Title:** Classification of Data

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## **Abstract**

Different data is available to us, what we look for is an accurate, consistent and a complete data which is easy to understand and are not out-dated to be short a good data, however what we get may be direct opposite ones - bad data. Sometimes bad data may be due to some negligence but its not the same always, people also manipulate the data according to their favour which can be counted as a crime. Identifying good and bad data has become a major issue at present. Features extraction is one of the main methods, different features are to be extracted for different data. These extracted features being the very basis for this classification method, must be thoroughly analysed, compared with the different labels that are prepared beforehand, compute the degree of deviations / anomalies (if any) according while analysing the output and the target output. Experts in digital forensics work on identifying the starting point from where the data got corrupted in a way to help – find criminals but here they only look for the starting point not for the degree of corruption the data contains. This research was for finding this degree of deviation to understand how much of data was corrupted.

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Illustration inspired by the work of John Maynard Keynes

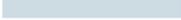
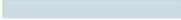
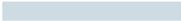
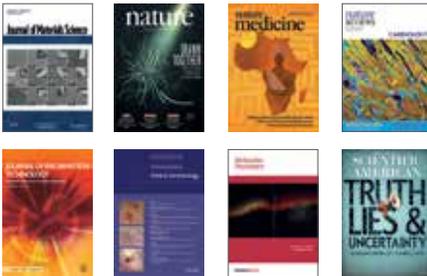


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