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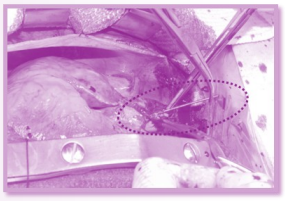
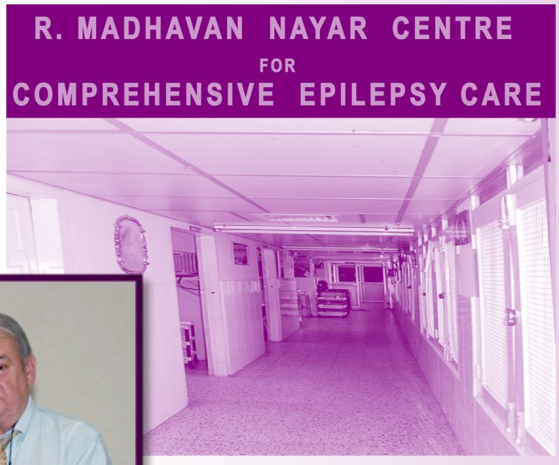
Chitra Dhwani

Quarterly e-magazine of SCTIMST, Trivandrum, Kerala, INDIA





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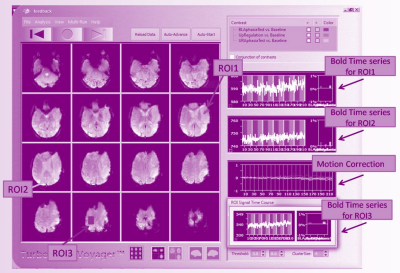

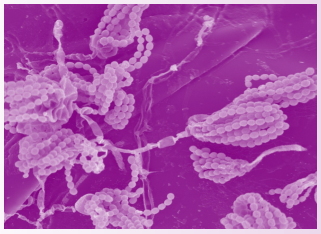

कम हो रही हमारी बेटियां

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Contents

"Most of the important things in the world have been accomplished by people who have kept on trying when there seemed to be no hope at all."

From Editor....

A Letter from the Editor

Dear All,

Amidst progressive chain of events happening in SCTIMST, we have come up with the last issue of the year 2013. It is an honor to receive pragmatic poetic expression from our Director and the noble words of Royals in "CHITRA DHWANI". The pride compounded when Ferid Murad, Noble laureate elegantly delivered Ist Parsthasarthi Oration amidst scintillating galaxy of intellectuals, stalwarts and budding scientists making it a magnificent historic event. The history of AMC and public healthcare initiatives are special attractions.

The front story on EPILESPY Center will take you to glorious history, initiatives and milestones in this specialized healthcare program in SCTIMST. A ride to the Customer Service Cell, an unique facility at the BMT wing will be cherished by far and nears. The state of art in functional imaging, brain computer interface for stroke rehabilitation will give a glimpse of increasingly popular tools in understanding the enigmas and intricacies of brain.

It would to delighting to read Dr Lal's (one of the first batch AMCHSS) uphill story and extraordinary decisions in life in the ALUMNI's column. In Memory lane, there is exemplary piece of contribution from Er Ranjit on his some of hilarious moments and unique experiences during his initial tenure at hospital.

During this last quarter, festive mood extended into the scientific and learning flavors. The Nobel laureates of this year would spark a life in our youngsters. The FUN section is again packed with remarkable cartoons, incredible poems, astonishing stories etc. An intense expression for education and safety of girl-child can be seen in Hindi written by our colleagues, a common message spreading in unison from Kanyakumari to Kashmir.

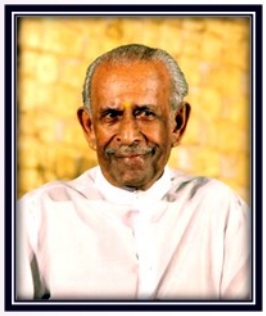
At the same time, we would like to review our journey of Chitra Dhwani in first year so that we can improvise further. We welcome suggestions/ comments/ feedbacks from you about this endeavor which will be featured in a special column in the first issue of year 2014. We continue to look forward to your co-operation, support and blessings to fly higher and make it a continued progressive success.

Wishing you all A Very Happy New year 2014.....

Thanks and best regards

Kamalesh K Gulia
Editor
Sleep Research Lab
Comprehensive Center for Sleep Disorders
SCTIMST, Trivandrum

A Royal message...



HH Padmanabhadasa
Sree Uthradom Thirunal
Marthanda Varma

*Remembering the words of the great philosopher Shankaracharya "Chitram, Vichitram, Suchitram", the coming together of many divisions and thoughts, aimed to heal and nurture humanity. His Highness Sree Chithira Tirunal Balarama Varma my elder brother, had a noble thought in his mind, to project the Institute as a unique Medical University with one subject area of specialty, "The Sree Chitra Medical University". That's what we want to achieve. We should put together all the efforts and achieve it, certainly because we have the capacity, attitude, and vision. What is lacking is the drive; Let us put the drive in it. On the year of 150th birth Anniversary of Swami Vivekananda, one should always remember "**Arise, awake and stop not till the goal is achieved**".*

We must strive strength and power from nature. At the time of conception, every such organization must plant seeds, it grows by the time patient comes. We have unending, always prompting ideologies in front of us. Our work par excellence should spread in the South, India, Asia and in the whole world. It is my joyous desire that it should reach all the four corners of earth, people should see and admire our efforts and contribution to science and humanity. It is pleasure to see the Institute leading in medical services in public sector.

*Today, I am able to speak to you at an age of 91, and convened a meeting with the British Royals, Prince of Wales at Cochin because of the firm assurance and enthusiasm shown by Doctors' team at Chitra who treat me with immense affection. For a young woman, Gold may be a part of her attire, but to us Gold is treasure of knowledge, to serve people and humanity. I perceive the 'Chitra Dhwani' such a channel, and wish that it is well-known, well got-up and appreciated. I extend my best wishes. Put all your enthusiasm **to make this endeavor really known in Quantity, Quality and Capacity.***

New Directions...

Jagan Mohan Tharakan
Director
SCTIMST

Random thoughts..

Heart of the Organization is its work force.
Soul of the Organization is its work culture.
Pulse of the Organization, it's vibrant environment.
Health of the Organization is its cultural forum.
Strength of the Organization is its building blocks.
Progress of Organization is innovation.
Stars of the Organization are individual brilliance.
The light of the Organization is its collective wisdom.
Relevance of the Organization is the Peoples' verdict.
What do I ask of the Organization:
My right to work and deliver.
What more do I give to the Organization:
My leisure time.
When am I relevant to the Organization:
As team person
Why I must deliver:
The Organization takes care of me
Why I must be contented:
lest others eye me with contempt
Blessed am I,
when my aspirations match Institute's vision……

New is the year, new are the hopes & the aspirations
New is the resolution, new are the spirits and
Wishing that the coming year is a glorious,
One that rewards our future endeavors with success.
Wishing Everyone A Prosperous Happy New Year ...

Notions: AMC

The Achutha Menon Centre for Health Science Studies (AMCHSS) was started as the public health wing of the Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Trivandrum with the following objectives: 1) to train highly competent and socially committed public health professionals, 2) to advocate for policies that promote equity in health, 3) to undertake quality research on priority health issues of the country and 4) to offer consultancy services to national and international agencies.

In order to accomplish the above objectives the AMCHSS started the first Master of Public Health (MPH) program in India and expanded subsequently through the affiliated Institutions of SCTIMST: the National Institute of Epidemiology, Chennai and the Christian Medical College, Vellore. One year post graduate diploma in public health is offered to doctors working in State and Central Government with an objective of enhancing capacity in public health systems. PhD in public health is offered to develop highly competent public health researchers and policy makers.

The AMCHSS works towards creating an enabling atmosphere for research facilitating student and faculty research, collaborating and networking with sister Institutions. We conduct and support research that is aimed towards policy outcomes in creating a healthy population. We engage with research agendas that include a multi-disciplinary approach strengthening faculty skills in this context, through collaboration across disciplines and institutions.

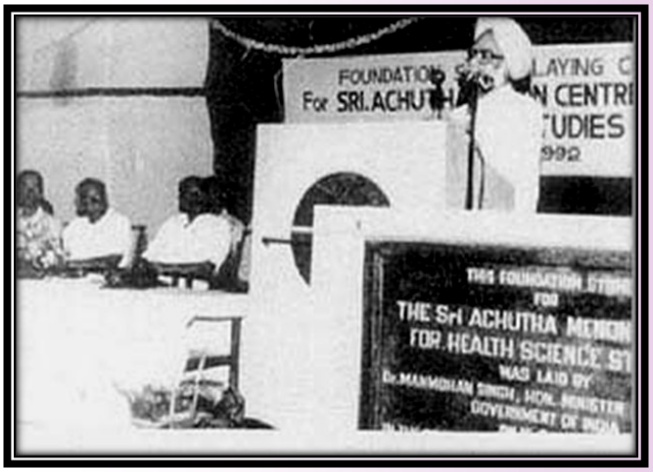
We undertake consultancy services, in areas of expertise of our faculty, with national and international agencies prioritizing requests from governmental, quasi-governmental and other not-for-profit agencies with the aim of supporting the cause of public health.

We collaborate with sister institutions and likeminded agencies to translate research into action by engaging in knowledge translation activities. One of our major advocacy initiatives will be to institutionalize public health cadre within the health services departments of all states similar to that adopted in Tamil Nadu.

Dr KR Thankappan
Professor and Head
AMCHSS
SCTIMST

Historical perspectives..

The need of preventing diseases through collective and informed health analysis of society and individual is an essentiality in an Institute dedicated to national health services. The Achutha Menon Centre for Health Science Studies (AMCHSS) is the Public Health Sciences wing of the Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST). Established in 1974, the SCTIMST's public health wing is a full member of the Association of Indian Universities & the Association of Commonwealth Universities.



(Foundation stone laying for Achutha Menon Centre by Dr Manmohan Singh, Central Minister for Finance)

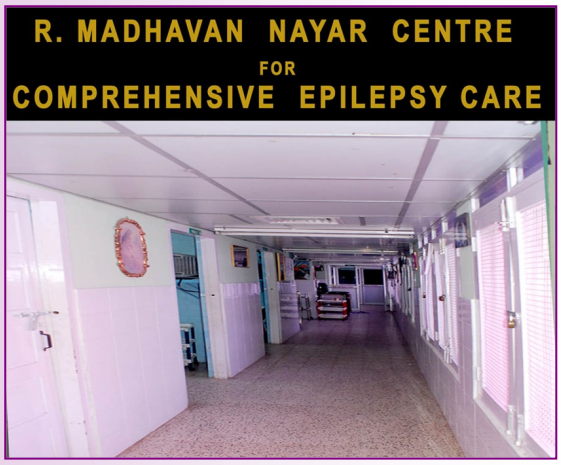
AMCHSS is recognized as a centre of excellence for public health training by the Ministry of Health and Family Welfare, Government of India. The centre focuses on research in the areas of non-communicable diseases, gender and health, health policy and management.

(AMCHSS dedication to the nation by Dr Murlimanohar Joshi, Hon Minister for Science and Technology)

The principle objective of the AMCHSS is to equip health professionals in health research and in formulation and implementation of health policies. AMCHSS offers an international Master of Public Health (MPH) program, which is the only MPH program in the country recognized by the Medical Council of India.

Special Feature **Chitra Conquering Epilepsy: an uphill task!**

An enterprising mission by R Madhavan Nayar Center for Comprehensive Epilepsy Care



Mr A hailing from North East India hit terrible by bizarre jerking of eyes and weird pursing of lips that occurred too frequently at any odd time or place without his awareness filling embarrassing moments in his life. For a young gentleman at 21 years in the prime of his life and spirits, aspiring for a brighter future, these strange involuntary movements were bolt from blue, a nightmare to the family to which doctors named "epilepsy". His well educated parents felt rather helpless as they moved from place to place in search for a solution if any, but in vain!! His condition further deteriorated after trying various combinations of medicines. He started rigorous jerking of whole body, with frothing and tongue bite; life indeed became a struggle for the whole family! At last, after a long spell of suffering, a last ray of hope was brought by another patient from their neighborhood who got cured from the R Madhavan Nayar Center for Comprehensive Epilepsy Care (RMNC) few years back. The epilepsy team at RMNC clinched the diagnosis of this not so common epilepsy after recording the events coupled with what is called a video-EEG (video electroencephalography). This is one the several examples of a miraculous change in the destiny of people with epilepsy and remains an inspiring one for the scores to follow. Another 13 years girl from a remote village in Uttar Pradesh was suffering from jerky movements on right side of body with falls and loss of consciousness since childhood. Neighbors soon labeled her as the one who is "possessed by spirits". Poverty, social taboo, gender discrimination and superstitions and above all an unbeatable ailment as they surmised made the family's life a hell. Stumbling in darkness for years, and a series of futile consultations which made them bankrupt, her parents finally came to SCTIMST referred by a local doctor with financial help arranged through a generous relative. The girl was taken up for an emergency surgery after explaining to the parents that a surgical treatment is necessary to cure this type of epilepsy.

The sojourns into the rejuvenated lives of these two individuals with epilepsy reiterates the need for recognition of epilepsy at the correct time, its proper evaluation by qualified persons and timely management in a centre which can cater to any such type of epilepsy offering best medical help and surgical cure.

Epilepsy is a common neurologic disorder. Epilepsy can occur in any age group from new born to very old. There was a time when this disorder had been considered as a disease which is not at all curable. There are lots of myths and misconceptions about epilepsy. It is still rampant in various sectors of society and various parts of our country. With a view to provide necessary and proper treatment, RMNC was established in 1998 under the Department of Neurology, SCTIMST, Trivandrum. Today, RMNC is the largest center in India and South Asia catering to the diagnosis, treatment, awareness and overall welfare of people with epilepsy. During the last 15 years of its excellent service to the society, RMNC has become an inspiration to many medical institutions of our country to start such specialized centers for epilepsy care. RMNC is a pride for the state of Kerala for it being located in God's own country and a privilege for any Indian or an overseas person who has epilepsy, who can avail the state-of-the-art treatment here in a very affordable manner, in par with Western standards.

The mission and vision of RMNC are:

- Medical, surgical, psychosocial and occupational management of individual patients with epilepsy.
- Educate the primary and secondary care physicians about the current trends in the management of epilepsy, and enhance the public awareness in order to dispel the prevailing misconceptions.
- Undertake clinical, applied and basic science research and evolve cost-effective investigative and treatment strategies.

Thus RMNC caters to:

- Patient care at tertiary level
- Patient care at community level
- Conducts and translate epilepsy research into day to day practice
- Human resource development.

What makes RMNC different from other similar specialized centers?

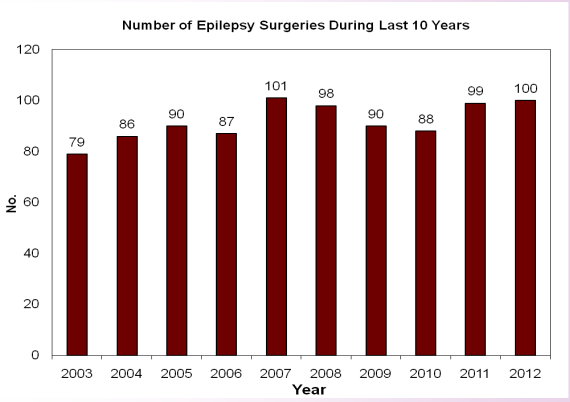
RMNC aims at facilitating and augmenting epilepsy care through a comprehensive care approach backed by sound academic and technological foundations. The RMNC team focuses on the psychosocial aspects and quality of life of people with epilepsy as well, by addressing in a realistic manner any problem in a person's life linked to epilepsy that topples his/her self-confidence. The RMNC team comprises of well trained and experienced Neurologists/Epileptologists, Neurosurgeons, Neuroradiologists, Psychiatrist(s), Neuropsychologists, Speech pathologists and Occupational therapists who are dedicated to their own profession, and all of them join hands together to achieve the desired goals by providing care and treatment to their patients. It also has a special unit called Kerala Registry for Epilepsy and Pregnancy (KREP) for catering to women of child bearing age who have epilepsy.

Two epilepsy clinics run twice a week in the Institute and at least 60-70 patients attend each clinic. Approximately 20-30 new people with epilepsy are seen per week and they are subjected to various investigations and their problems are then discussed in a common patient management conference held every week within the team of professionals mentioned above. The growth of RMNC inter-alia give a strong message to the society that epilepsy is no more a nightmare and is curable. RMNC has successfully completed more than 1500 epilepsy surgeries for people with medically refractory epilepsy, with approximately 90-100 surgeries being done every year more than any other Institute within India. An outreach centre is conducted every month by one of the doctors of the team on the first Sunday at Changaramkulam PHC in Northern Kerala at Malappuram district. In addition, 3-4 camps are conducted for catering to people with epilepsy at various districts of the state. Apart from the basic care being given there, patients who require advanced treatment are in turn referred to RMNC. This community based epilepsy care program was initiated with a view to educate the public about epilepsy in addition to the patient care activities rendered by the team.

Surgical Milestones

- **First surgery : March 20, 1995**
- **200th surgery : April 22, 1999**
- **400th surgery : March 25, 2002**
- **600th surgery : September 24, 2004**
- **800th surgery : January 4, 2007**
- **1000th surgery: January 8, 2009**
- **1200th surgery: March 25, 2011**
- **1300th surgery: March 28, 2012**
- **1450th surgery: September 4, 2013**

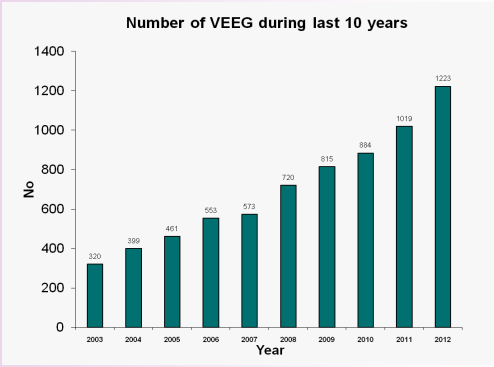
For those patients who belong to the poor socioeconomic strata, RMNC arranges to provide necessary financial assistance for their treatment through various schemes available in SCTIMST such as Thalolam, CHISPLUS, Prime Minister's Relief Fund, Karunya Benevolent fund, other schemes of Government of India and Government of Kerala and also through various charitable organizations. RMNC also focuses on rehabilitation of people who are cured of their ailment through procurement of employment and helping women to get married etc, with the help of occupational therapists, various agencies and various awareness programs, which is also a need of the hour.



Every year, during the National epilepsy day on November 17th, RMNC regularly conducts a one-day celebration to commemorate the various activities of the program and to educate the common man the need of considering epilepsy as a simple disease with complete or near total cure whereby a person with epilepsy also can live in the society with all dignity like his companion. On this day, various competitions are conducted for children with epilepsy and prizes are distributed by reputed and distinguished social figures, again to reinforce the fact that epilepsy can be brought "out of shadows". "Savants' are those individuals whose mental capacity is abysmally low

and such people are sometimes suffering from chronic epilepsy as well to make matters worse for the care-takers. RMNC is all the more devoted to bring them up through continuous rehabilitative measures and they excel in the realms of art, music etc through constant nurturing and have amazed and delighted many a people. In the auspicious occasion of the National Epilepsy Day, RMNC identifies and bring such talented persons with epilepsy to light and unravel them as models to the society highlighting and underscoring that epilepsy is neither a stumbling block nor hindrance for any individual to excel in any field!

Paripassu with patient care, RMNC is also actively involved in research and teaching. Two or more post doctoral fellows receive training here in Epilepsy since 2003 for a year after they complete their neurology training so that they can move out to various parts of the country and simulate the comprehensive epilepsy care program like the one in RMNC. Many observers too, from various states of India and abroad come for weeks to months to get trained from RMNC. Many research activities are being conducted here and it has its credit has several national and international publications every year.



Facilities available at RMNC

The center is equipped with state-of-the-art video EEG monitors used for both pre-surgical evaluation and syndromic classification of the various epilepsy sub types. In addition, bed-side EEG monitoring for management of status epilepticus and other emergencies are in place. Round the clock neurotechnologists and nursing and medical personnel take ample care of all the patients. Advanced neuroimaging facilities like functional MRI (fMRI), EEG-fMRI co-registration, diffusion-tensor Imaging (DTI), volumetric MRI, T2 relaxometry etc are also done regularly. RMNC also subjects patients to SPECT (single photon emission computed tomography) and PET (positron emission Tomography), two non-invasive methods of evaluation of people with epilepsy to identify their area of seizure origin. Implantation of electrodes inside the brain to accurately define the area of seizure origin is also done regularly which is called "invasive monitoring". Also, we do non-invasive surgical procedures like a vagus nerve stimulator implantation (VNS) for patients who are not candidates for resective brain surgery. To map the important functional areas of the brain like the ones which subserves the motor, sensory, visual and language functions, a technique called "cortical stimulation and mapping" is done both intra-operatively and extra-operatively to avoid encroaching into these areas once surgery is contemplated thus avoiding any untoward complications.

RMNC patient management Conference

In conclusion**,** RMNC provides yeomen service to the society by providing the best treatment for a person suffering from epilepsy. From the deeply ingrained myth even among the educated class that certain unfortunate individuals are born to live with epilepsy, RMNC and its dedicated team dispels this unfound fear in the society each day, each moment through its dedicated and committed team work which has made SCTIMST flag fly high in the medical field in India and even abroad. RMNC believes in the motto that ***"A team means more We and less I"***. As Laurence Miller conceived ***"By the deficits, we may know the talents, by the exceptions, we may discern the rules, by studying the pathology we may construct a model of health. And-most important-from this model may involve the insights and tools we need to affect our own lives, mould our own destinies, change ourselves and our society in ways that, as yet, we could only imagine.",*** *RMNC strives hard day and night and has almost made this dream a reality.*

(Contributed by Dr Sanjeev Thomas and the team at RMNC, SCTIMST, Trivandrum)

Emerging Trends in Science....

Sree Chitra takes noble initiatives in Public health:

Asian Collaboration for Excellence in Non-Communicable Diseases (ASCEND) training program in Achutha Menon Centre

Globally, more than 60% of deaths are due to non-communicable diseases (NCDs) and at least 80% of these occur in low and middle income countries. The UN General Assembly has urged global action to strengthen the capacity for quality research. The Asian Collaboration for Excellence in Non-Communicable Disease (ASCEND) Research Network is a US NIH-funded research training program which aims to develop and sustain a network of researchers and institutions across Asia to address the growing epidemic of NCDs.

Dr P K Jameela, Director of Health Services, Govt of Kerala inaugurating the ASCEND training program. Dr Sankar Kumar MS, SCTIMST presided over the function

This program is a collaboration of research institutions, researchers and partner organizations from Australia, USA, India, Sri Lanka and Malaysia. This 18-month training and mentoring program for early career researchers from South Asian countries involves two face-to-face teaching blocks, a 12 month mentored research project and fortnightly online sessions. Almost 50 trainees from cohorts one and two have undertaken the program so far. Research projects have so far included: peer support to support physical activity in women in India; dietary interventions for people with type 2 diabetes using an e-approach; a review of policies on NCDs in Sri Lanka; the influence of food television advertisements on adolescents; exploring factors influencing health seeking behaviors among patients with type-2 diabetes in Malaysia; and health economic analysis of prescribing and treatment strategies in patients with diabetes and high cardiovascular risk in India. Trainees' achievements already include more than 50 peer-reviewed publications. One trainee has completed her PhD and 15 trainees are currently enrolled in a higher research degree (PhD, MD or MPhil).

This program demonstrates the feasibility, acceptability and career outcomes of a combined face-to-face and online program to early career researchers living and working in their own low and middle income countries. Future steps for the evaluation and sustainability of this program will involve: (1) the long term evaluation of the impact of the program on trainees' careers, their institutes and policy and practice in their countries; and (2) the development of a sustainable model for providing this kind of 'blended' training program, ASCEND, in order to enable many more researchers from low and middle income countries to benefit in the future.

Prof Brian Oldenburg, ASCEND program Director from Monash University, Australia

As one of the partner Institutions of ASCEND the Achutha Menon Centre held the recent training program of ASCEND during the week of July 29-August 1 for 25 trainees from the South Asian Countries.

Participants of the ASCEND training program

(*Contributed by Dr K R Thankappan, Professor and Head, AMCHSS*)

Brain Computer Interface for Stroke Rehabilitation

Brain computer interface (BCI) is a novel technology, which enables a new output channel for real-time communication or control between a person and the outside world. BCI systems make use of the neuro-physiological signals in the brain and interpret them to form an output.

BCIs have been developed based on various signals from the brain such as electroencephalography (EEG), functional MRI (fMRI), and near-infrared spectroscopy (NIRS). BCIs based on EEG provide a more direct measure of neuronal activity from the brain and are portable. However, they can record signals only from the cortical structures alone and fail to record signals from deeper parts of the brain. Compared to EEG, fMRI can detect signals from deep parts of the brain and is widely used for brain mapping. fMRI images the blood oxygen level dependent (BOLD) signal from the brain. The processing of data done for fMRI is usually offline and takes several hours. Real-time fMRI (RT fMRI) allows generation of brain activity information from the MR scans in a time period of 1-3 seconds. The architecture of real-time fMRI is shown in Fig 1. Advances in computing and faster image processing algorithms enable completion of the processing of image data within shorter time periods to generate the maps of brain activity. NIRS based BCIs also measure local blood properties to generate an output. The advantage of NIRS based BCIs compared to fMRI based BCIs is that they are portable and less expensive.

The output of a RT-fMRI based BCI can then be fed back to the person being scanned to form a neurofeedback loop, which has been shown to be effective for self-regulation of BOLD activity in specific brain regions. Neurofeedback is a subset of biofeedback characterized by the feeding back in a suitable form of a bio-signal such as EEG or EMG. Biofeedback enables self-regulation, which is a process that allows an individual to learn how to change physiological activity for the purposes of improving health and performance. Self regulation of brain activity in specific areas of the brain is a promising tool for neuro-rehabilitation. Patients with either stroke or other non-degenerative causes have been trained on real-time fMRI for regulation of activity in affected areas or surrounding areas to study improvement of brain function. One such study being conducted at the institute uses RT fMRI as a neurofeedback strategy to modulate neural activity of stroke victims with expressive aphasia. The regions of interest (ROI) chosen for the study are the language areas like left Broca's area and left Wernicke's area. ROI1 shown in Fig 2 is Broca's area, ROI2 is Wernicke's area and ROI3 is a non-associated area such as Parahippocampal Place Area (PPA) or Supplementary Motor Area (SMA) used to capture background BOLD signal.

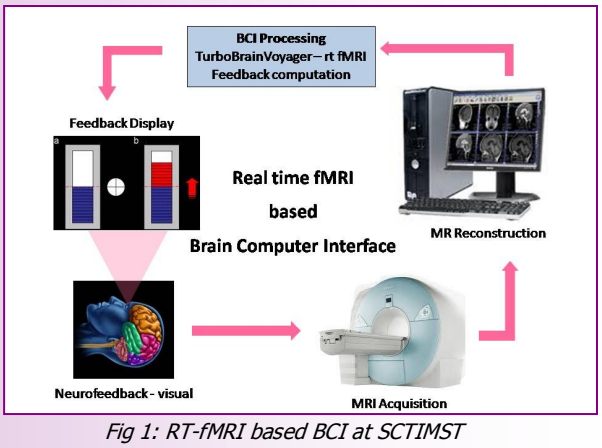


Fig 1: RT-fMRI based BCI at SCTIMST

The hypotheses of this study are: (i) Stroke patients with expressive Aphasia can learn to self-regulate (up regulate) the BOLD signal in Broca's area with RT fMRI neurofeedback; (ii) Acquired up -regulation will lead to an improvement in expression of language. The study is in progress and the data obtained from this study suggests that the pilots as well as the patient are able to up -regulate the BOLD activity in the Broca's and Wernicke's areas. The study of improvement in language for the patient as a result of the neurofeedback based up-regulation is in progress. This study was funded by Department of Biotechnology, Government of India.

Fig 2: Turbo-BrainVoyager software screenshot indicating ROIs during real-time fMRI

(Contributed by Anuvitha Chandran & Sujesh Sreedharan)

A day at the Customer service cell……..

"Hello, am I talking to the Customer Service Cell of Sree Chitra? Actually, I want one of our devices, well, it is a new implant to be tested for biocompatibility at your esteemed institute. Can you please guide me with this? I am located at ……."

This is a typical conversation that is heard on CSC phone nos. 2520307/308/309 at frequent intervals of time everyday and which keeps overflowing in the inbox of email id: "csc@sctimst.ac.in" every day. Information provided in **web site** also.

No wonder, since our Institute is perhaps the only one in the country offering "accredited" testing services for biological evaluation of medical devices as per International standard. And the CSC is the window of the BMT wing to the world for all such testing requirements.

The Genesis and the Growth in Services

What perhaps many of our Institute staff also does not know is that the CSC has been operational for more than a decade now. Ever since the doors to testing services at BMT wing were opened up for external customers in 2000, CSC has been coordinating all the activities from the initiation of test request to issue of test reports. While the external clients have benefited immensely with having to interact with a single point professional contact, the internal faculty and students have also enjoyed the comfort of availing the CSC services to facilitate their testing needs.

The growth in the demand for testing at BMT wing was bound to happen. It is because the tests are carried out on ISO 17025 quality system platform and this quality system is accredited by COFRAC of FRANCE. This essentially means that the test reports issued by Institute with the seal of COFRAC accreditation have international acceptance as being a technically valid report.

The testing services offered at the BMT wing focus mainly two aspects - Physico-chemical analysis and biological evaluation.

The physicochemical tests like spectroscopy, chromatography, microscopy, thermal analysis, profilometry, Micro-CT imaging, mechanical testing, XRD analysis etc are mostly availed by researchers as well as by industry.

The specialized biological tests such as biocompatibility evaluation are mainly availed by industry and internal faculty. This includes in vitro cytotoxicity, acute systemic toxicity, test for delayed hypersensitivity, irritation test, local effects on implantation on muscle/tissue and bone including histopathology, pyrogen test, hemolytic property of material, genotoxicity – in vitro and in vivo, blood compatibility of materials and also other biological tests like sterility, histopathological evaluations, cell adhesion, antimicrobial activity , bioburden test etc.

Another major service offered is study based preclinical evaluation in large animal models. These evaluations which provide assurance of device safety or functionality prior to use in humans in a clinical trial is well patronized by industry. The large animal evaluation facility is considered to be a unique facility in the country.

Lecture & discussion sessions during Open House & Customer Meet held in Feb 2013

Specific services like accelerated aging/package evaluations is also in great demand from industry.

Recently after the accreditation of calibration cell by NABL, we have rolled out calibration services for volumetric and thermal calibrations to external customers through CSC.

From the Customer base of around five medical device companies initially, our

industry customer base has now grown to more than 100 companies, apart from academic institutions and research organizations. The test requests have gone up from around 150 requests per year to around 600 requests per year. There is a steady increase in requests from both external and internal customers and the only regret we have at CSC is that we cannot accept every request as the demand far exceeds our capacity.

Being Customer Centric

Whether it is the managing director of a leading medical device company in Ahmedabad or a top surgeon from Germany or a research student from Guwahati, the CSC promptly and patiently responds to all their queries which ranges from technical queries such as test methodologies, selection of appropriate testing strategy to commercial information such as costs, duration etc.

What begins as a simple enquiry most often leads to a very strong technical partnership between the client and the Institute, with the Institute sharing its technical expertise and rich experience with the client in getting its products/materials evaluated. Most often, these evaluations help the client industry to obtain regulatory approvals as well and hence are of great importance to the client. From our side also we give it the importance it deserves and hence, there have been very little complaints from the customers. This is possible only because of the co-operation and team work with the testing labs, accounts and administration in this regard.

The nature of testing services offered by us is very technical and specialized about which there is generally little awareness among the customers. The CSC also therefore organizes Customer Awareness Sessions, such as the Open House for Testing Services held in January this year. The CSC acts as a technical consultant and helps the client understand the nuances of the testing. They are also invited to visit us and witness some of the tests as per the need.

While customer demands 24X7 attentions, we have limitations at present. Who knows in the future, we may have our own call centres, interactive webchats and our own CSC apps for smartphones?

The rewards

Being part of the CSC is quite enjoyable as it gives a ringside view of the evaluation of a large number of devices ranging from external devices like gloves, wound dressings etc to short term devices like syringes, electrodes etc to high risk implants such as coronary stents and orthopaedic implants etc. It gives an opportunity to interact with innovators and medtech companies all over India and even abroad. Most of them keep coming back again and the relationships grow into long lasting ones. It is gratifying when we learn that our customers have been able to obtain DCGI approvals, US FDA approvals, BIS certifications etc which enable them to enter Indian and other foreign markets. It helps us foster a network of 'Friends of Chitra" among the medtech community.

(Team CSC- S Balram (Scientist-F and In-charge), Sandhya CG and Asha Rani)

Discussion sessions during Open House & Customer Meet held on 16th February 2013

Research Highlights ....

Writer's cramp
The Indo-French team resolves the mystery
Defective brain control responsible

Dystonia is a movement disorder causing excessive muscle contractions, abnormal postures and twisting movements. It can involve the whole body or remain restricted to some areas. It may occur only during specific tasks (e.g. writing, typing) or be present even at rest. It is thought to occur from the abnormal functioning of a network linking basal ganglia and motor cortex, causing abnormally high plasticity at the motor cortex and reduced ability to inhibit neurons at different levels in the motor system.

In an Indo-French collaborative study (Supported by Dystonia Coalition- NIH, INSERM and ICMR) led by Dr Asha Kishore, Principal Investigator in SCT and Dr Sabine Meunier, Principal Investigator, Hospital Sal Petriere, Paris, established the role of cerebellar dysfunction using the model of a task-specific dystonia called Writer's Cramp (Hubsch et al, 2013). Cerebellum is necessary for sensorimotor adaptation during performance of skilled tasks such as writing. The capability of on-line sensorimotor adaptation was tested in healthy volunteers and patients with Writer's Cramp. The cerebellar function of modulating motor cortex plasticity was assessed using image-guided-transcranial magnetic stimulation.

The study found that unlike healthy volunteers, patient with Writer Cramp have impaired online adaptation, with a specific difficulty in washing out an earlier adaptation and a total loss of cerebellar modulation of motor cortex plasticity. The greater the loss of cerebellar function, the more severe was the deficiency in performance in online adaptation. The authors concluded that in Writer's Cramp, there is a defective encoding of the sensory afferent input and association with motor commands reaching the cerebellum. This leads to an abnormal information flow in the motor networks, and a gradual build up of incorrect motor programs at the motor cortex for specific adaptation tasks such as writing. This landmark study established the role of cerebellum in Writer's Cramp.

Ref: **Brain. 2013 ;136(Pt 7):2050-62**

Knowledge and Skills of ASHAs in India:

An evaluation of birth preparedness and pregnancy Complications

India's progress towards achieving Millennium Development Goal (MDG) 5 of reducing maternal mortality ratio has been unsatisfactory. The National Rural Health Mission (NRHM) in India relies on Accredited Social Health Activists (ASHAs) to act as a link between pregnant women and health facilities. All ASHAs are required to have a birth preparedness plan and be aware of danger signs of complications to initiate appropriate and timely referral to obstetric care. The present study aimed to examine the extent to which ASHAs are equipped with necessary knowledge and skills in a rural district in Karnataka, (South) India.

A cross-sectional descriptive study was carried out among 225 ASHAs between June – July 2011. Quantitative and qualitative data were collected using pre-tested semi-structured interview schedule. The response rate was 207 (92%).

In terms of Complication Readiness, only 15 (7.2%) ASHAs could identify all key danger signs in the pregnancy period, 10 (4.8%) were aware of key danger signs that occur in the postpartum period and almost no one (1%) knew of all key danger signs for labour and childbirth. Knowledge of key danger signs was associated with repeated, recent and practical training ($p < 0.05$). A majority (71%) scored 4-7 of the maximum score out of 8 for knowledge regarding Birth Preparedness.

The study thus found that ASHAs in rural Karnataka, India, are poorly equipped to identify obstetric complications and to help expectant mothers prepare a birth preparedness plan. This is cause for concern because the government of India's key strategy for reducing maternal mortality is through equipping ASHAs to initiate appropriate action in the community. There is critical need for the implementation of appropriate training and follow-up supervision of ASHAs within a supportive, functioning and responsive health care system.

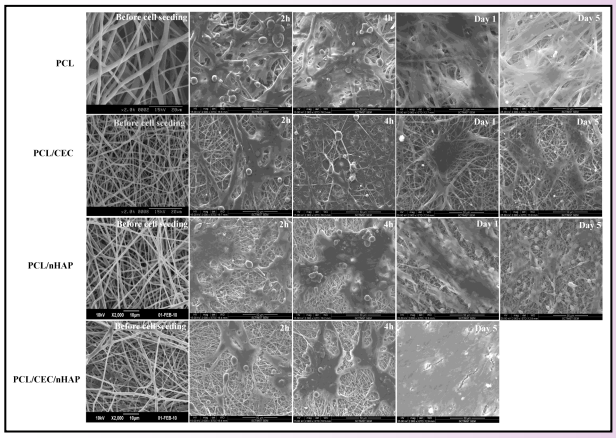
Ref: **International Journal of MCH and AIDS (2013), Volume 2, Issue 1, Pages 121-128**

Research Highlights ....

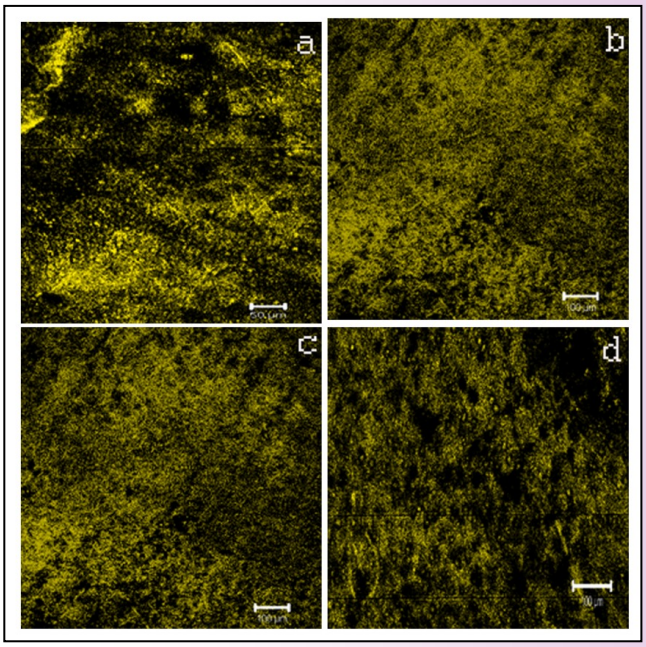
Electrospun biodegradable polymeric nanofibers

Application in bone tissue engineering

Electrospun biodegradable polymeric nanofibers has become an attractive candidate as scaffold for tissue engineering due to their biomimetic structure which physically resembles the native extracellular matrix (ECM). The study focused on enhancing the hydrophilicity of polycaprolactone (PCL) nanofibers, to enhance cell adhesion, migration, proliferation, and differentiation during cell culture. The study is a comparative evaluation of physical and biological properties of electrospun biodegradable fibrous scaffolds based on polycaprolactone (PCL) and its blend with polycaprolactone - polyethyleneglycol - polycaprolactone (CEC) with and without nanohydroxyapatite (nHAP) particles. The morphology, porosity, surface wettability, and mechanical properties of electrospun PCL were distinctly influenced by the presence of both copolymer CEC and nHAP. *In vitro* hydrolytic degradation studies confirm the impact of both CEC and HAP on the morphology and mechanical properties of PCL. After 14 days of PBS ageing, thinning as well as rupture of fibers occurred indicating the biodegradation phenomenon. MTT assay using mouse fibroblast L929 cells proved all the scaffolds to be non-cytotoxic. An overall enhanced performance was shown by PCL/CEC/ nHAP scaffold in cell viability and proliferation. The Alkaline Phosphatase (ALP) activity (bone marker) confirmed the presence of osteogenic-induced rabbit adipose-derived mesenchymal stem cells on all the scaffolds. In comparison, the results reveal the potential of the cytocompatible PCL/CEC/nHAP scaffold for the fabrication of living bony constructs for tissue engineering applications.



SEM images showing adhesion of ADMSC on scaffolds



Confocal laser scanning micrographs showing the ALP activity of osteogenic induced cultured ADMSC (a) PCL (b) PCL/CEC (c) PCL/nHAP (d) PCL/CEC/nHAP

This impressive study conducted by Remya, Joseph, Susan in supervision of Dr Annie John, Dr HK Varma and Dr P Ramesh is published in **Journal of Biomedical Nanotechnology, 9, 1483-1494, 2013**

Photographic competition for Science and General pictures

Entries are invited for the pictures competition in science or general category. The pictures should have been taken between Dec 10, 2013 to Feb 20, 2014.

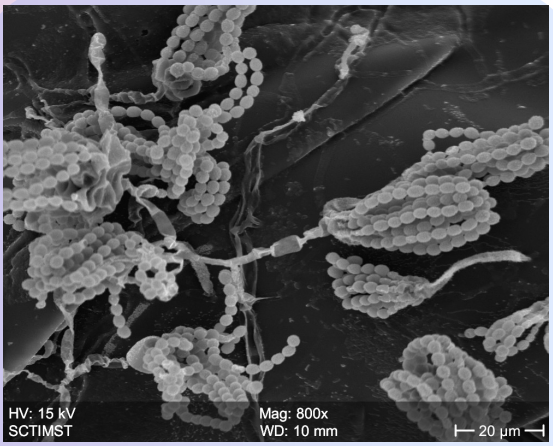
Only one entry can be submitted per person

Picture can be coloured or black & white

Last date: Feb 20, 2014 (Submit at enewsletter@sctimst.ac.in)

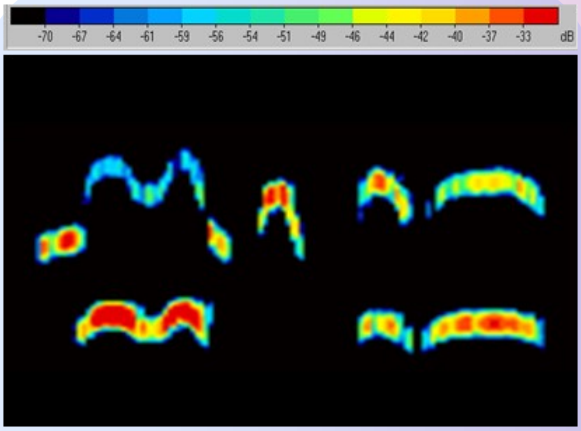
Science Images from our research
In quest of Artistic Titles.....

A



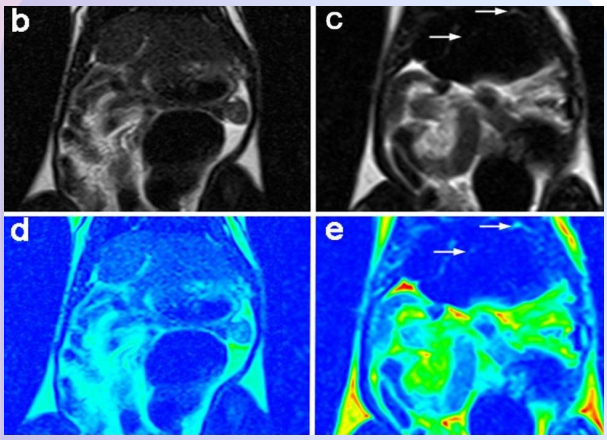
Fungus on biomaterial surface
Contributed by DTERT Lab

B



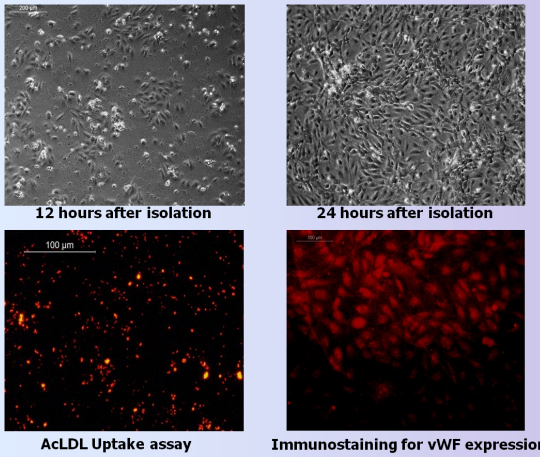
Ultrasonic calls (acoustic signal) from rat pups: Distress songs. Contributed by Sleep Disorders Research Lab

C



MRI contrast agent for liver fibrosis: pre and post in vivo MR images. Contributed by Biophotonics imaging Lab

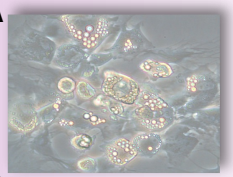
D



Isolation and characterization of Human umbilical vein endothelial cell. Contributed by Thrombosis Research Lab

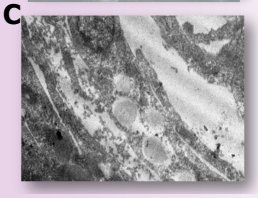
Entries are invited for a suitable artistic title for these scientific pictures. The winner entries for each picture will be announced in next issue.

A



Beryl Beauty

C

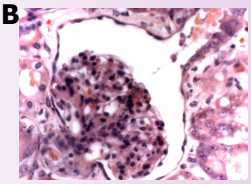


Shallow Spring

Joanna Sara Valson
MPH, Batch 2013
Winner

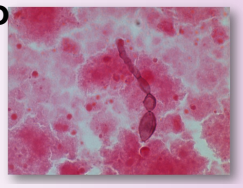
B

Marshy Mustard



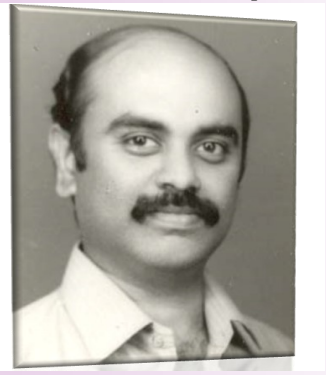
D

Glossy corpuscle



Memory Lanes...

Perfusionist recalling experiences at Cardiac Operation Theatre!



Having been the eldest born, in the year when the Indian states were linguistically organized, that too to a pioneering first generation lady Doctor of the Kerala state health services, and at SAT Hospital, Trivandrum; I had never fancied in gaining employment into its medical specialty neighborhood that sprung up near it in early 1970s. A Medical Centre initiated by the Philanthropist, last but late king of Travancore - Sri Chitra Tirunal Bala Rama Varma. This super specialty neighborhood materialised adjacent to SAT campus, thanks to a generous Donation for health care, based on European models, by the Late King.

My mother wanted me to follow her foot steps into the medical profession; a mantle that I somehow detested since childhood, on account of my dislike of blood; occasioned by the ghastly sight of a favorite teacher of mine at Mar Thoma Lower Primary School, Kottarakara; vomiting reddish blood profusely, as she coughed intermittently, until she breathed her last! In retrospect, I had always wondered about the frail unhealthy countenance of that poor Lady who had no access to expert cardiac care in early 1960s; May her soul rest in peace!

That shocking event at school on the fateful forenoon had me swooning at home in hunger into a long weary slumber at noon, from which I woke up at dusk, groggily demanding my breakfast after brushing my teeth like any methodical youngster! But our servants soon brought me back to my senses by gleefully reminding that the sun had just set!

Truly my sun rose again, when I was ceremoniously packed off to a Jesuit boarding school at Trivandrum located in the ever green Loyola campus at Sreekaryam; from where I managed to pass out in 1973 with credible colors in ISC. Thereafter, it was the inevitable 5 year integrated Electrical Engineering course in the REC (now NIT) in Bhopal - named after the first Education minister in Jawaharlal Nehru Cabinet: Maulana Azad. This course provided me the basic launch pad to become what I am today at this National Medical Institute.

Having graduated from the Maulana Azad College of Technology, my mind was focused on the Civil Services Exam; but Alas! the doomsday arrived when the joint Engineering syllabus for the preliminary Exams was heavily biased towards Electronics and my competing friend Ramaseshan - Gold medalist from the Bhopal University, Electronics branch; got through to eventually become MD of many prominent public sector concerns. His last envious stint was as MD of National Commodity & Derivatives Exchange Ltd, Bombay.

It is still with tremor that I now recall my interview for a little heard of, but enticing PERFUSIONIST's post at the just nationalized SCTIMST held in mid 1981. Buoyed by youthful exuberance and coupled with razor sharp acumen gained while preparing for Civil Service Exams; the interview was my delight, since my mother had got me coached overnight with a vengeance, under the able tutorship of a Sr cardiologist at Shanker's Hospital Quilon; who bore a grudge since he was not selected when he applied for a post at SCTIMST!

Had I known that I was to face an interview board consisting of the luminary who's who in Indian Cardiac Surgery of 1980s - viz, Dr MS Valiathan, founder Director of SCTIMST, Dr Solomon Victor, Chief Cardiac Surgeon, General Hospital, Madras; Sr Industrial Scientist, DST, etc; I would not have dared to face them with the cock sure nonchalance I displayed then! "Ignorance is Bliss!" and then blinds were on the right side for me, as I was an intrepid and improvising almanac on Cardiac Surgery and Devices for their 25 minutes of intense brick batting session! When I was eventually asked to leave, I rejoined – "Shall I wait outside for the results?" This prompted Dr Solomon Victor to smile at me radiantly – "No! You may go home and we will send you the results there."

That's precisely what transpired when I actually got the selection call from SCTIMST to report on 17th August 1981! Thereafter I stepped enigmatically into a totally conflicting domain with an Electrical Engineering Qualification. Our Director Dr MS Valiathan egged me on with all optimism – he was a soft but firm, unrelenting Guru. Dr Mohan Singh, the then Professor of Cardiac Surgery was very considerate and guided me with utmost patience; grooming me into a tolerant novice apt for patient care; thus inducting me smoothly into the sophisticated, hallowed precincts of Cardiac surgery. Meanwhile some

curious skeptics blatantly commented in shocking disbelief as to what an Electrical Engineer could do in a surgeon's paradise? The laurels rest on history!

During my initial days there was a session on aseptic procedures under the strict supervision of the taciturn, hawk eyed sharp scrutiny of the scrupulous but frail theatre supervisor nurse. Her demeanor then nostalgically reminded me of my younger days with my frail school teacher who had expired tragically, thereby changing the course of my academic orientation. I was subjected to some of the supervisor's teasing remarks meant as a morale booster, like - "We are all your friends here! Just consider it, so many girl friends around you!"; hinting about her disciplined and intimidating army of theatre nurses. Well it was virtually "Water, water everywhere, but not a drop to drink!" ocean like situation for me. I somehow managed the half a dozen years tenure at the cardiac operation theatre (COT) with a clean chit, despite the most tempting propositions!

In those early 1980s, we were a cost conscious lot with our shoe string budget and therefore used many re-usables. After each blood enriched cardiac surgery we had to clean the bloody mess of cardiac implements. While doing such routine post-operative preparations, I used to wonder at my quirk of fate; since I had considered blood as the most abominable entity in my childhood! Here at SCTIMST, I was handling more blood than any other qualified engineer on earth - having supervised and personally managed perfusion for more than 1800 open heart surgeries, employing extra corporeal circulation technology.

One day while busily engrossed in cleaning the surgical implements, I had privilege of visit by one of the newly joined comely sisters having immense reputation for her CMC, Vellore expertise. She joined me in Heart Lung machine room. Standing beside the large wash tub in which water was splashing over the equipments, she quietly watched the bloody mess, then raised her head & sniffed the air. Wrinkling her nose she commented softly, "Hmm… You smell of some expensive perfume!" Fluttering her eye lids, she added "Is it some foreign one?"

Looking down at the bloody swirling pool I muttered vampirishly, "I smell only blood, Madam!". She then leaned over the cleaning tub with her elbows resting over the ledge and warbled coquettishly, "Umm…Ranjit, what is your exact qualification?". Ruminating over my bloody situation, I remarked candidly with a sigh, after a long pause "Sister, I presume to have the appropriate qualification to wash these bloody equipments!". She knitted her eyebrows and stared daggers at me, and then walked away in a huff! Ever since, she has never uttered a word to me to this day!

Being a total tee-to-taller, I avoided even tea and coffee and preferred a vegetarian diet supplemented with lactose based menu. The strenuous theatre duty was taken up by me seriously; thereby stepping up the annual cardiac surgical output in open heart surgery from an average of 3 hundred to a staggering figure, close to one thousand! That was the Golden era of SCTIMST and we had an impeccable cardiac surgery team to boast of!

My strict regimen at COT with enforced discipline had my routine entry into a surgery theatre before sunrise and quite often leaving the clinical precincts after the sun had set. Frequently the prolonged surgery had me breaking my day long fast only for a hurried lunch past 3 'O' clock at the staff canteen, where they always used to considerately keep a thali meal for me.

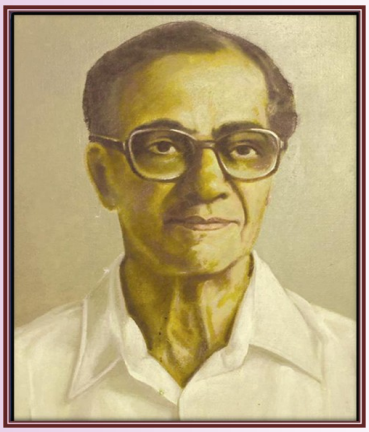
There was an aftermath to a gynaecological consultation by a Sr Theatre Technician of our COT for his wife, with my mother; who was then a consultant at Sree Ramakrishna Mission Hospital, Sasthamangalam; which was one hospital in the approved list for medical reimbursement by SCTIMST. The Technician had curried favor from my mother when she identified and queried him as a SCTIMST employee. He had then proudly narrated my stern dedicated approach to surgery as a colleague and reiterated on my fasting methods - which incidentally emulated hers! Her personal experience as a civil surgeon with irregular meals roused her maternal instincts; which overrode my critical need for full involvement during intricate cardiac surgery procedures. With concern she suggested that my depleting energy levels ought to be replenished by lactose products; apologetically mentioning my avoidance of tea and coffee - which obviously caused me to avoid the regular tea breaks enjoyed by all other floor staff at COT.

Their interlude had culminated in the enlightened Technician being prompted to report on my diet habits and coax the theatre supervisor sister to venture into a supply of my much needed energy supplements; which I politely refused.

There are many such interesting facets in the eventful half a dozen years of my posting at the SCTIMST Hospital Wing; when the glory of SCTIMST rose to an 'Everest pinnacle' and I had the privilege of acquiring a never before professional experience, normally vetoed to all other regular technocrats! I was a true Bio-medical Engineer with clinical experience & one of the pioneers in India!

(Er D Ranjit is Biomedical Engineer at BMT wing, SCTIMST. He is managing **Technical Co-Ordination Cell,** *and is also In-charge of the Electrical Division).*

1st G Parthsarathy oration



Shri G Parthasarathi, GP (1912-95)

Mr GP was a stellar diplomat and brilliant intellectual who made major contribution to education and social science research. He was the first President of Sri Chitra Tirunal Institute.

The first G Parthasarathy Oration, was delivered by Prof Ferid Murad, Nobel Laureate in Medicine and Physiology (1998) on November 7, 2013 at SCTIMST. There is a saying that when opportunity meet a prepared mind, discovery find the way!

In 1863, Alfred Nobel invented dynamite, the revolutionary explosive of which nitroglycerin is the key component. When he suffered from chest pain later in life, his doctor prescribed nitroglycerin. This prompted Nobel to write in a letter, "it is ironical that I am now ordered by my physician to eat nitroglycerin". He never ate it. At that time, there was not even a clue regarding how this 'explosive' substance could be beneficial to heart. It took more than 100 years to discover how nitroglycerin worked and to provide answer to Alfred Nobel's doubt. Ferid Murad at George Washington University, who discovered that Nitric Oxide gas was responsible for the beneficial effect of nitroglycerin in heart and thus providing answer to Alfred Nobel's enquiry. Along with two others, Murad was awarded the Nobel Prize in the year 1998, which would have been special news to Alfred Nobel, as it was a discovery that could have made an impact in his heart!

Further research results rapidly confirmed that nitric oxide is a signal molecule of key importance for the cardiovascular system and it was also found to exert a series of other functions. We know today that nitric oxide acts as a signal molecule in the nervous system, as a weapon against infections, as a regulator of blood pressure and as a gatekeeper of blood flow to different organs and even in plant defense mechanisms. For showing this omnipotent property, the scientific community christened nitric oxide as the 'molecule of the year' in 1992.

New initiatives

Murad's insatiable curiosity, conceptual thinking, flawless hypothesis, rigorous experimentation, wild imagination, and intuition along with unmatched ability to communicate clearly moved him towards a successful discovery.

Dr Ferid Murad

Many would have wondered about how do such scientific discoveries occur? A close introspection reveals that discoveries are not skillfully engineered; in many cases discoveries occur in serendipity. When scientists are given free will and environment to pursue their inner queries, research progress. As said by VS Ramachandran, famous neuroscientist, "science flourishes best in an atmosphere of complete freedom and financial independence. No wonder it reached its zenith during times of great prosperity and patronage of learning - in ancient Greece, ... in the golden age of the Guptas in India... and during the Victorian era - the era of gentleman scientists like Humphrey Davy, Darwin and Cavendish".

The famous discovery of penicillin by Alexander Fleming, X-Rays by Rontgen, Paul Ehrlich's discovery of acid fast method of staining, Claude Bernard's discovery of glycogen formation in liver, importance of Boron in plant nutrition by Davidson & Warrington are classical examples of discoveries made by chance. But, they all were ready in their life for making such discoveries by the very depth of their involvement in scientific pursuit. They rightfully grabbed the opportunity and made the feeling among common men that chance played the crucial part.

(*The magnificent moments captured by the Founder & present Director along with Head, BMT wing and Dean, SCTIMST)*

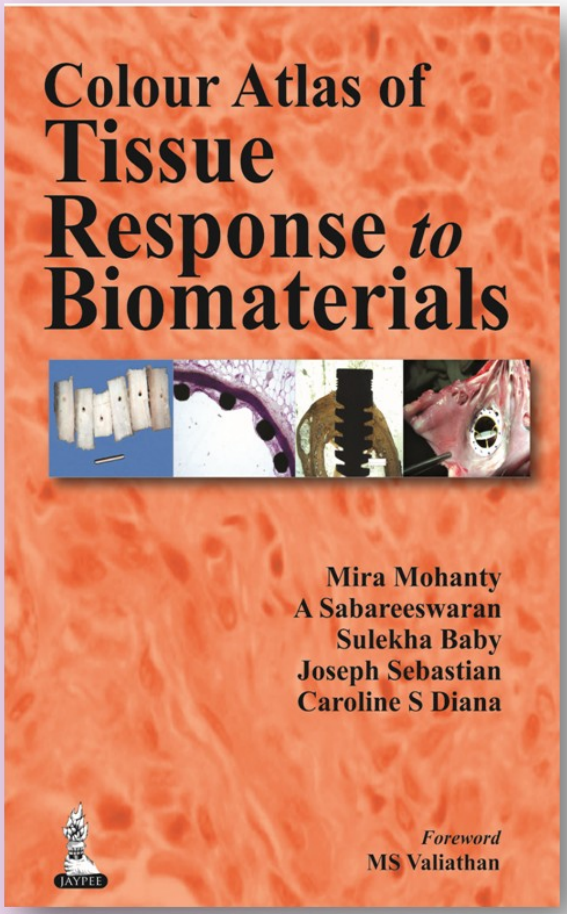
(Compiled by Dr Srinivas G, Biochemistry, SCTIMST)

New Faces

Dr Pradeep Punnakkal has joined SCTIMST availing prestigious Ramalingaswamy fellowship (sponsored by DBT).

Dr Dayamon D Mathew has joined as Chitra Fellow-C (Veterinary Scientist) in the Div of In-vivo models and testing, BMT wing, SCTIMST.

New release



This ***"Colour Atlas of Tissue Response to Biomaterials"*** is a collection of gross features and micrographs of events taking place at the material tissue surface. The atlas would be useful to students and investigators in biomaterial sciences & veterinary sciences, toxicologists, engineers and pathologists.

Chitra's Stars: Awards/ Honours

Nightingale

Dr Saramma PP, Senior Lecturer in Nursing is in charge of conducting two formal specialty programes for registered nurses viz. Diploma in Cardiovascular and Thoracic Nursing (DCN) and Diploma in Neuronursing (DNN) and has trained 320 specialist nurses (DCN-189 & DNN - 131) from 1988 to 2012. Her meritorious professional activities include preparation of curricula for various specialty nursing education programes, manuals for nurses, practical manuals for specialty nursing students and a self-instructional module for pregnant women with epilepsy (English and Malayalam). She has contributed to nursing research by presenting papers in state level, national and international conferences as well as published 17 papers in indexed journals. Presently the President of Society of Indian Neuroscience Nurses, she has taken various roles in different professional organizations. This best nurse educator awardee of Kerala (TNAI, 2010) has given her expertise in continuing nursing education programes in this university as well as other universities as faculty, examiner, judge and quiz master. As a cardiopulmonary resuscitation (CPR) trainer, she has trained many professionals and nonprofessionals in Basic Life support (BLS). As part of community service, this first rank holder (MN, University of Delhi, 1985) has participated in many interactive sessions for public, including television and radio programes. She is indebted to the Institute for her 34 years of professional growth.

"Like success, failure is many things to many people. With Positive Mental Attitude, failure is a learning experience, a rung on the ladder, a plateau at which to get your thoughts in order and prepare to try again."

Chitra's Stars: Awards/ Honours

Medical Health Innovation Award

Valedictory function of the Medical Health Innovation Awards-2013 ceremony held in August at Chennai where SCTIMST's entry - **'Design and Development of Hydroxyapatite Burr-Hole Buttons'** (jointly by **Dr HK Varma** of Bioceramics division and **Dr HV Easwer** of the Neurosurgery Dept) won a Silver Award from the British Deputy High Commissioner to Chennai, Mike Nithavrianakis.

Fellow of Academy of Medical Sciences

Dr R Renuka Nair, Scientist G (Senior Grade), & Head of the Cellular and Molecular Cardiology, SCTIMST is elected fellow of the National Academy of Medical Sciences. **FAMS** was conferred at the convocation of the Academy held at AIIMS, Jodhpur on 26th October 2013. Dr Renuka's research interest pertains to control of cardiac remodeling consequent to chronic pressure overload or ischemic injury.

Awards: Oral presentations

Dr Alok Mandliya, Senior Resident, Department of Neurology, **stood first in National Competition of Torrent Young Scholar Award** held in Ahmedabad on 06.10.2013. The award fetches rupees one lakh.

CONGRATULATIONS! CONGRATULATIONS!

Dr Sujit Abajirao Jagtap, post doctoral fellow in Epilepsy has won the **first prize** for best paper presentation "**Clinical, Electrophysiological and Neuroimaging Characteristics of Patients with Midically Refractory Eating Epilepsy**" at the 21st Annual Conference of Indian Academy of Neurology, held in Indore, India.

CONGRATULATIONS! CONGRATULATIONS!

Awards: Oral presentations

Ms Soumya Cloumbas KC, PhD scholar, BMT wing, has won the **best paper award** for Oral Presentation for paper **"Evaluation of bi-layered electrospun scaffolds for potential small diameter vascular constructs"** authored by Soumya Columbus, Lissy K Krishnan and V Kalliyana Krishnan which was presented in the National Seminar on Biopolymers & Green Composites on September 27, 2013 at Kochi and organised by Centre for Biopolymer Science & Technology, Kochi.

Dr Shunmuga Sundaram, Post doctoral fellow in Cardiac Electrophysiology has been awarded the **first prize** for **'The Electrophysiology Case Presentation'** in the Indian Heart Rhythm Society Annual Meeting -2013 held in Chennai.

Ms Padmakrishnan CJ, PhD Scholar, Dept of Biochemistry, has won the 3rd prize for the oral presentation entitled **"Isolation and Characterization of Glioma Stem Cells from Different Grades of Human Glioma Tissues"** authored by Padmakrishnan CJ, Easwer HV, Menon G, Nair S, Vinod V, Srinivas G at the 4th International conference on stem cells and cancer (ICSCC-2013): Proliferation, Differentiation and Apoptosis held at Haffkine Institute Mumbai from 19th to 22nd October 2013.

Awards: Poster presentations

Ms. Syama S, PhD Scholar, Toxicology Division, Biomedical Technology Wing has won the **BEST POSTER AWARD** for the poster entitled **'Assessment of nanohydroxyapatite toxicity on mouse bone marrow mesenchymal stem cells'** (Syama S, Reshma SC, Gayathri V, Mohanan PV) at the 2nd International Summit on Toxicology (Toxicology 2013) held at Las Vegas, USA during 7-9 October 2013.

CONGRATULATIONS! CONGRATULATIONS! CONGRATULATIONS! CONGRATULATIONS!

"A dream is your creative vision for your life in the future. You must break out of your current comfort zone and become comfortable with the unfamiliar and the unknown."

Awards: Poster presentations

CONGRATULATIONS! CONGRATULATIONS! CONGRATULATIONS! CONGRATULATIONS!

Ms Nandini RJ, PhD scholar, Dept of Biochemistry, for winning the **outstanding poster award** for the paper titled **'Status of nitration and nitrosylation in the atrial tissue of type 2 diabetic human heart'** (Nandini RJ, Raji SR, Pillai VV, Jayakumar K, Harikrishnan VS, Srinivas G) at the International Symposium, 'Legacy of Nitric Oxide Discovery: Impact on Disease Biology', jointly organised by RGCB and SRIBS from November 5-6, 2013.

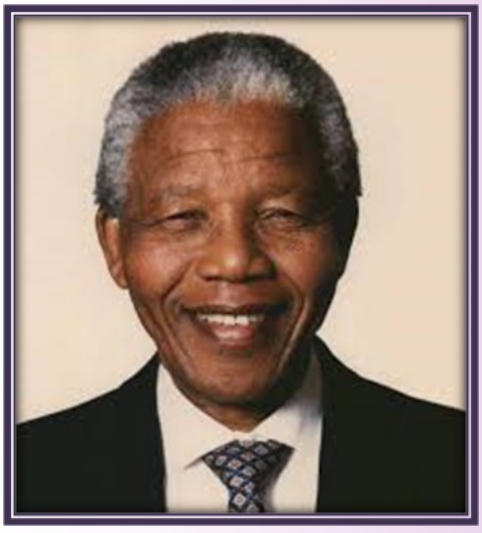
Mr Joice Tom J, MPhil (Biomedical Technology 2012-2013), Transmission Electron Microscopy Lab, BMT Wing, for winning the **First Prize** in Poster Presentation for the paper entitled **'Assessment of Bone Quality and stem cell potential with aging'** at 3rd Euro-India IN Conference on Nanomedicine & Tissue Engineering (ICNT-2013) held at Mahatma Gandhi University, Kottayam, Kerala, India during August 9-11, 2013.

Mr Rahool S awarded with **first prize** for the poster presentation titled as **'effect of bilateral arm training in improving upper limb function among acute stroke'** in neuraxis'13 held at All India Institute of Medical Sciences, New Delhi and Institute of Applied Medicine and Research, Ghaziabad.

Ever Living legends

"What counts in life is not the mere fact that we have lived. It is what difference we have made to lives of others that will determine the significance of the life we lead"

Nelson Mandela



"Education is the most powerful weapon which you can use to change the world."

Events held at SCTMST ....

Basic Training in Ethics in Health Research

The training was conducted jointly by AMCHSS and IEC-SCTIMST on August 26-31, 2013. Dr Jagan Mohan Tharakan, Director, SCTIMST inaugurated the event. Dr Thankappan KR and Dr Mala Ramanathan delivering the lecture (pictures below)

World Alzheimer's Day Dementia - A Journey of Caring

Mr G Karthikeyan, Speaker, Kerala Legislative Assembly inaugurated 2 days CME program on 21 September. Dr MD Nair, Dr Ramshekar Menon from Neurology Dept, and President of Alzheimer's & Related Disorders Society of India, Trivandrum chapter are gracing the occasion.

Events held .....

National Vigilance Awareness Week

Dr D Babu Paul , IAS (Former Chief Secretary, Govt of Kerala) giving key note address during National Vigilance Awareness Week. Dr Jagan Mohan Tharakan, Director, SCTIMST, Heads of BMT Wing and AMCHSS and MS enjoying the lighter moments on vigilance.

Let's take pledge

National Epilepsy Day

Drawing competition for Children
The Winner receiving Prize

Dr Jagan Mohan Tharakan, Director, SCTIMST inaugurating the National Epilepsy day. Joining hands in mission are Dr Alexander Jacob, IPS, DGP prisons (Kerala), Dr MD Nair (Head, Neurology), Dr Suresh Nair (Dean) and Dr Sanjeev Thomas (Neurology)

Hindi Fortnight Celebration

Dr Jagan Mohan Tharakan, Director; Dy Director, Registrar, Head of Neurology Dept lighting ceremonial lamp of knowledge at SCTIMST on Hindi Fortnight Day inauguration.

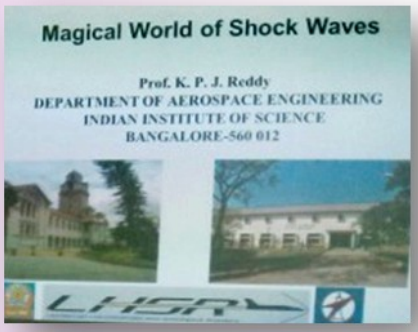
The students of SCTIMST giving scintillating performances, showing excellence even in cultural platform during Students Day.

Medico-Techno club

Second Medico-Techno club of this year was organized at BMT Wing on the 14th of August. The talk entitled **"Gradients and 'Raw Materials'** in Tissue Engineering" was given by **Prof Michael Detamore** from University of Kansas, USA.

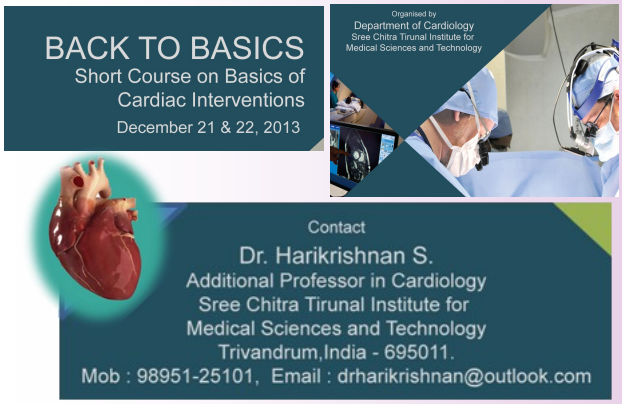
Prof Detamore delivered an interesting speech on the new technologies and strategies of using "raw materials" as building blocks, the engineering of continuous gradients, and centralized osteochondral tissue engineering to enhance cartilage regeneration.

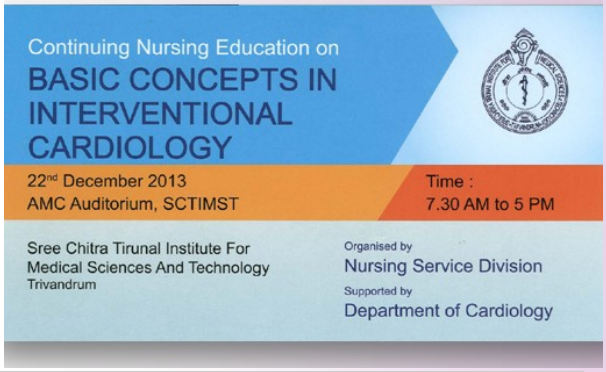
In the subsequent meeting organized at the Hospital Wing on the 30th of August, **Prof KPJ Reddy** from Indian Institute of Science, Bangalore delivered an interesting lecture on **"Magical World of Shock Waves".** The lecture summarized the research initiatives and facilities available at IISC, Bangalore on shock waves, research using the shock tubes for different applications like space vehicles, missiles, agriculture, biology, medicine and material science.



(Contributed by Dr Neethu Mohan, DTERT, BMT wing)

Upcoming events ....





RTPMED-2013

Three Days Intensive Residential Training Programme on "Toxicity, Safety, Biocompatibility Evaluation of Materials, Medical Devices and Combination Products"

Contact Address
Dr PV Mohanan
Organizing Secretary, RTPMED-2013
Scientist & Head, Toxicology Division
Biomedical Technology Wing, SCTIMST
Poojapura, Thiruvananthapuram 695012
Phone: Direct (Off) 91-471-2520266, 2520246
Fax: 91-471-2341814
Email: rtpmed2013@gmail.com

Dream about opportunities and not retirement.. Dr SS Lal

I was delighted to see an email request from Dr Gulia for an article narrating my post-SCT experiences in the alumni column of the ChitraDhwani. But, the thought about writing this article infused Mark Twain's dilemma into me; diverse experiences of 15 eventful years to be woven into few words.....

An exciting journey across continents often through turbulent air in the past fifteen years after my MPH brought me here in January; today I work in Washington DC as the TB Director of PATH with the responsibility of global operations. I belong to the first batch (1997) of MPH at the Achutha Menon Centre. I would give all credits to the world-class professors and wonderful colleagues at AMC for transforming a medical doctor like me into a public health manager. After MPH, I served the state government for about a year as Epidemiologist. In 1999, I joined WHO as a field officer in south India to provide technical assistance to the Revised National TB Control Program (RNTCP) of India. RNTCP gave me the opportunity for hands-on learning of public health from the field, and to use my skills innovatively in handling problems. In that job, I undertook some unconventional experiments, facilitated by the Indian Medical Association, which resulted in the successful participation of private hospitals in TB control. This effort, known as Public Private Mix (PPM), gathered national attention. In 2003, I was recruited by the WHO as national professional officer based in New Delhi to lead the national scale up of PPM.

In 2007, the South-East Asia regional office of the WHO appointed me as Technical Officer to advise the national TB and HIV programs of East Timor. East Timor was the newest and the least-developed country, and was facing civil strife. Difficulties including civil war in a culturally unique population that impacted the health of people taught me new lessons. I met many nurse-physicians managing major hospitals. Medical emergencies and complications of tribal people who lived in the remote mountains were not adequately addressed due to infrastructure limitations. I had one more surprise when I met Mr Suku Nair from Trivandrum who in the middle of all chaos was calmly running a restaurant in Dili, the capital of East Timor. There were also priests and nuns from Kerala living in East Timor.

It was in June 2008 when I was finishing my annual contract in Timor; I got a phone call while I was attending a meeting in the UN campus. Ryuichi Komatsu at the other end from Geneva told me that I got selected as Senior Technical Officer for the Global Fund to work in Geneva. Delhi to Dili and now Dili to Geneva; these are not easy moves especially when you have a family.

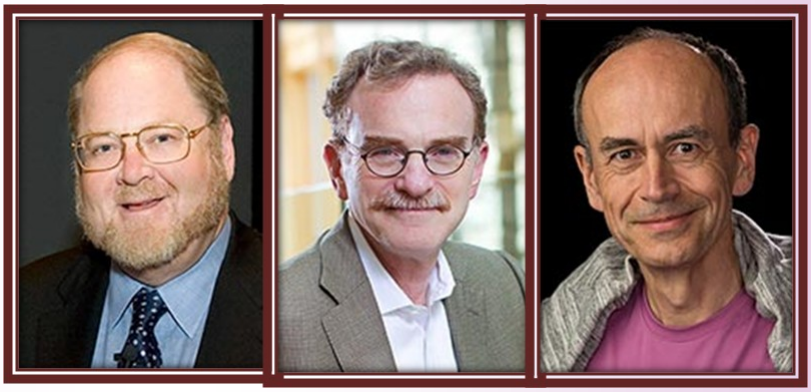
I had spent some good five years in Geneva with fascinating responsibilities including that of Senior Fund Portfolio Manager when I decided to resign from the Global Fund to join PATH. Some of my friends really couldn't comprehend my decision to leave a job that was assured until my 65th year. A young colleague in Geneva tried to find out from me why I wanted to resign from a comfortable job that provided me diplomat status and several other privileges. My reply confused her initially. I explained, "I am too comfortable here and that is why I am resigning". ***I would advise my young friends to be bold enough to leave jobs when you feel you have nothing more to contribute to or learn from that job***. However, moves should not be for the sake of moves. ***Courage to move will take you to new horizons and provide your space for youngsters behind you to grow and do the job better. Dream about new opportunities and not retirement!***

(*Dr SS Lal, MBBS, MPH, MBA, is currently working as Technical Director, HIV/TB Global program, PATH at Virginia, USA. We are thankful to him for sharing his journey of life akin to a potential Role Model paving landmark success track, an Indian in public healthcare)*

Nobel Prizes 2013

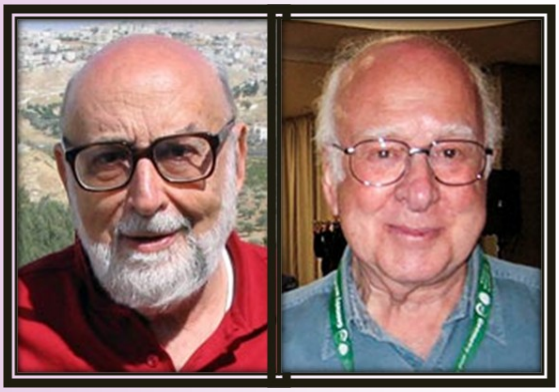
Medicine/ Physiology

The Nobel Prize in Physiology or Medicine was awarded jointly to James E Rothman, Randy W Schekman and Thomas C Südhof, scientists responsible for their ***discoveries of machinery regulating vesicle traffic, a major transport system in our cells***. The three scientists together solved the mystery of how the cell organizes its transport system.



James E Rothman **Randy W Schekman** **Thomas C Südhof**

Rothman, 66, is a professor of cell biology, biomedical sciences and chemistry at Yale University. Schekman, 64, is an investigator at the Howard Hughes Medical Institute and a professor of cell and developmental biology at the University of California, Berkeley. Südhof, 57, is an investigator at the Howard Hughes Medical Institute and a professor in the school of medicine at Stanford University.



François Englert **Peter W Higgs**

Physics

The Nobel Prize in Physics was awarded jointly to François Englert and Peter W Higgs, scientists responsible for developing key concepts in the theory that predicted the Higgs boson. On July 4, 2012, scientists working on experiments at the Large Hadron Collider (LHC) at CERN announced the discovery of the Higgs boson, a particle that proves the existence of the Higgs field. Nearly 2000 physicists from institutions and national laboratories around the world participated in the two LHC experiments, CMS and ATLAS, both general-purpose particle physics experiments that made the discovery.

Higgs, 84, is a professor emeritus at the University of Edinburgh in Scotland. Englert, 80, is a professor emeritus at Universite libre de Bruxelles in Belgium.

Chemistry

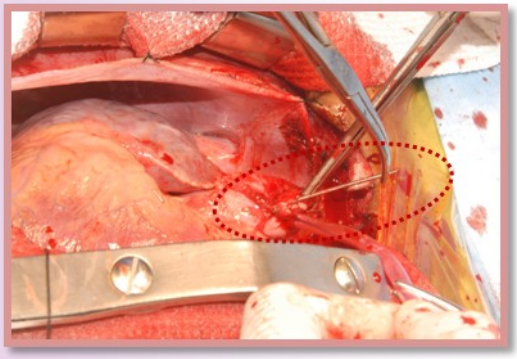
The Nobel Prize in Chemistry was awarded jointly to Martin Karplus, Michael Levitt and Arieh Warshel, scientists responsible for ***"the development of multiscale models for complex chemical systems".*** Computer models mirroring real life have become crucial for most advances made in chemistry today. Powerful computer models, first developed by the three scientists in the 1970s, offer a new window for understanding and solving complex chemical and biological conundrums and have become a mainstay for researchers in thousands of academic and industrial lab around the world. Karplus, a professor emeritus, carries out research at the University of Strasbourg and Harvard University. Levitt is at the Stanford University School of Medicine. Warshel is a professor at the University of Southern California, Los Angeles.

Martin Karplus **Michael Levitt** **Arieh Warshel**

The Nobel Prizes were introduced in memory of Alfred Nobel, an industrialist who invented dynamite. The prizes in physics, chemistry, physiology or medicine, literature and peace were first awarded in 1901. All the prizes are traditionally presented to the winners in a ceremony in Stockholm on December 10, the anniversary of the death of Alfred Nobel (1833-1896). Laureates receive a diploma, medal and around eight million Swedish kronor (920,000 euros, $1.25 million) per full Nobel Prize, which is shared among winners.

Did you know ???

Nail in the heart ! Chitra's cardiac team triumphs over a challenging surgery.....



A nail piercing the heart or the great vessels is akin to crucification. Recently, doctors at the Department of Cardiology Radiology and Cardiac Surgery at SCTIMST came across such a problem in a 23 year old young man. He was being treated for a severe regurgitation of the aortic valve which was considered to be due to rheumatic heart disease, a common problem in our country.

He underwent evaluation at Sree Chitra and during echocardiography an unusual shadow was seen across the aorta into the heart. This prompted the doctors to ask leading questions, to that he revealed that he had a road traffic accident 6 months back. He fractured his right clavicle for which nailing was done with two Kirschner wires. Kirschner wires are great contributions of World war concentrations camps when the doctors came out with ingenious metallic nails to bring together broken bones so that the wounded Nazi soldiers could get back to their patriotic missions. These metallic pins and plates can be removed once the fracture heals. In this case, doctors could remove only one wire, the other one remained deep in the healed wound inaccessible. That history helped doctors to trace the nail by fluoroscopy and computerized tomographic scanning which confirmed its present position transfixing the aorta into the heart.

Once the diagnosis became clear, cardiac surgeons lead by Dr Vivek Pillai carefully removed the nail, replaced the damaged valve and the boy is now back to his work. The case is remarkable for it many learning points. More over, it reminds the need to be careful in not leaving sharp objects in the body. This interesting clinical case is reported as images in the **Journal** of the **American College of Cardiology, volume 68, issue 16, page 1488, 15 October 2013**. Obviously, the pictures speak thousand words....

(The write up provided by Dr Sivasankaran, Cardiology Dept)

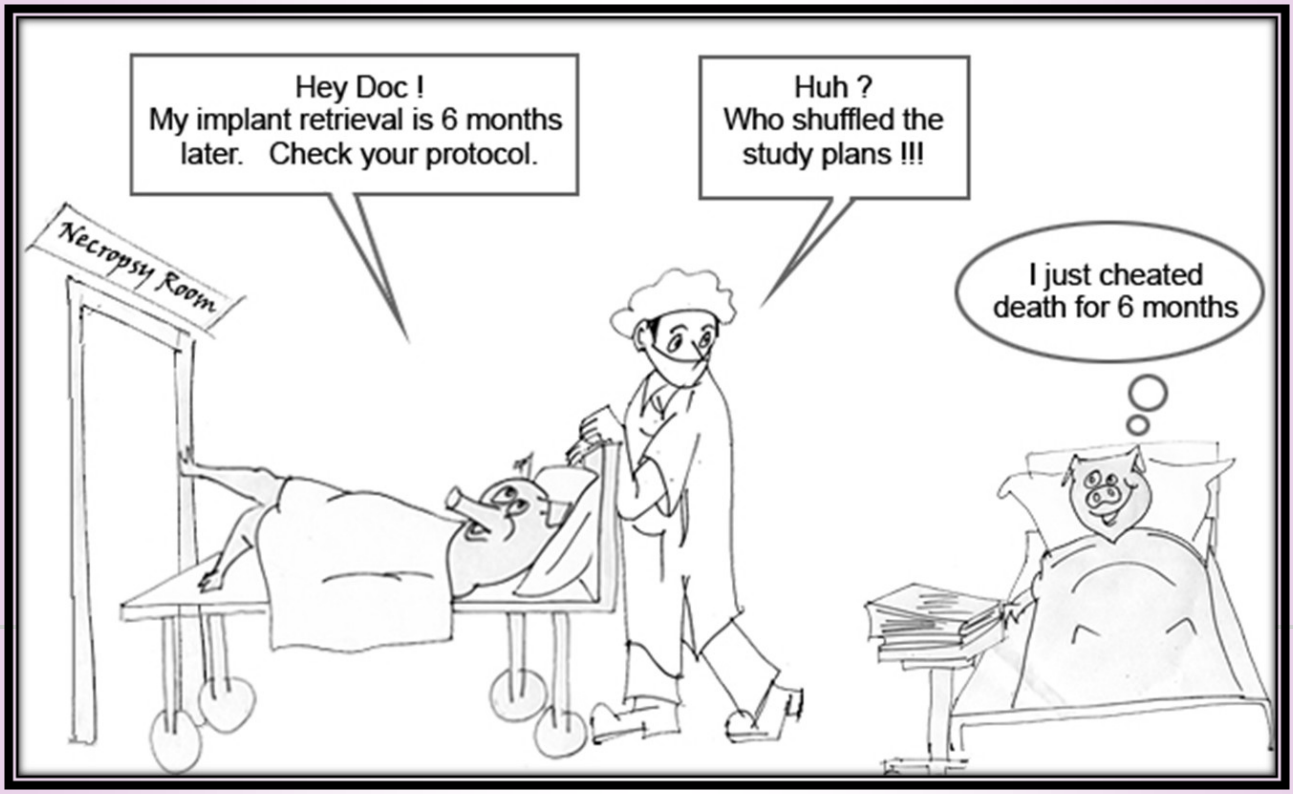
Anything other than Science...

What is Hindi Diwas.....

Hindi Diwas is celebrated across India on 14 September 2013 for commemorating the occasion of adoption of Hindi as the official language of Constituent Assembly on 14 September 1949. On this day, Hindi language was accorded the status of Official Language of the Union by the Constitution-makers of India. Since then, every year, 14 September is observed as the Hindi Diwas. The decision of using Hindi as the official language was ratified by the Constitution of India that came into effect on 26 January 1950. Under the Article 343 of the Indian Constitution, the Devanagri script of Hindi was adopted as the official language.

After the declaration, non-Hindi speaking states received a grace period of 15 years till the year 1965 in order to witch over to Hindi language completely. It was declared that Hindi would be the only working language of the Union Government of India as well as the State Governments. On the occasion, Rajbhasha Awards are conferred upon the Ministries, Departments, PSUs and Nationalized Banks by the President of India for the excellence in different fields pertaining to Hindi. At SCTIMST, the Director conferred Awards to the winners of competitions in different category during Hindi Fortnight celebrations.

Fun Page....



(Designed by Anil Kumar PR, Scientist C, Tissue Culture Lab, BMT wing)

Fun is not limited to children!

Karate in full swing in BMT campus!

A frog went to visit a fortune teller. "What do you see in my future?" asked the frog.

"Very soon," replied the fortune teller. "you will meet a pretty young girl who will want to know everything about you."

"That's great!" said the frog, hopping up and down excitedly. "But when will I meet her?"
"Next week in science class." said the fortune teller.

Stories straight from heart…… expressions in Hindi

Girls safety and education are such issues that have shaken and awaken the societal norms across the globe. From time to time, role models are born among the children themselves to fight for their rights. One brave heart star in this decade is Malala Yousafzai from Pakistan.

कम हो रही हमारी बेटियां

Recently, on 14 September, in an in-house competition at SCTIMST, the कम हो रही हमारी बेटियां title was given for essay writing. A huge response echoing the unanimous sentiments for the safety and education of girl child was observed. To give a flavor, the award-winning entries are given.

प्रथम पुरस्कार (First Prize)

डिम्पिल गोपी
पुस्तकालय ब प्रलेखीकरण सहायक
पुस्तकालय - अस्पताल स्कंध

यह तस्वीर जो बोलती है वह है -"मासूमियत और इस दुनिया में रहने का अधिकार" । इतनी सुन्दर और मासूम "जीव" को जीने की हक ही हम नहीं देते है। लड़की को अब भी बराबरी का हक तो क्या जीने का हक भी नहीं देते । वह पढ़ने, लिखने, खेल खूद आदि में कितने माहिर क्यों ना हो उसे तो कोई भी हक नहीं है । लड़कों को ही सभी चाहते है ।

हमारे ही देश भारत में जहाँ स्त्री पूजनीय माने जाते है वहाँ ही लड़कियों को जन्म से पहले मिटाए जाते है । लड़कियों के मिटाने के लिए केवल पिता ही नहीं माता भी सहमत हैं । ज्यादा से ज्यादा लोग लड़के ही चाहते है । हाल ही में एक घटना पत्रों में थी - पति लड़ती नहीं चाहता था तो उसने पत्नी को ही खत्म कर दिया । ऐसे है हमारी दुनिया । बराबरी का दर्जा के लिए माँग है पर हम जीवन ही मिटाते हैं ।

सभी को है जीने का हक । क्या हम - स्त्रीयाँ और बालिकाएँ किसी से कम है । यदि सही शिक्षा दे सकते तो लड़कियाँ ही अवल नंबर पर आते है । कल्पना चॉवला, इंदिरा गाँधी, सरोजिनी नायडू, सईना नैवाल आदि इस के प्रमुख उदाहरण है ।

गौर से देखो तो लड़कियां ही लड़के को से सभी क्षेत्र में आगे है । स्नेह और सहिक्षण्ता स्त्री का आभुषण है जो पुरुष को प्रकृति ने कम दी हैं । हमारी बेटियाँ ही हमारा कल और आज है । लड़कियों से ही वंश चलाता है, न कि लड़को से । पर हम सब ने यह ठान ली है कि लड़कों से ही वंश चलता हैं। लड़कियाँ रसोई और घर के काम काज़ में भी लड़कों से माहिर है । वह एक तरफ वैज्ञानिक भी है और दुसरी तरफ एक उत्तम कुटुंबिनी भी है । क्या पुरुष ऐसे कर सकते है ?

हमारे बेटियां हमारा भविष्य है । वह उपवन के ऐसे फूल है जो उपवन को अलौकिक सौन्दर्य प्रदान करती हैं । लड़कियों को जीने का अधिकार दो वह सब कुछ कर सकती हैं ।

द्वितीय पुरस्कार (Second prize)

दीपा एल एस
प्रवर श्रेणी लिपिक
क्रय विभाग - अस्पताल स्कंध

"एक तरफ से स्त्री - पुरुष की बराबरी की बात हो रही है तो दुसरी तरफ बालिकाओं को जन्म से पहले ही मिटाया जाता है । "यहाँ आधुनिक काल की स्त्री की दुरावस्था पर तीखा व्यंग्य किया है । आजकल स्त्री यानी बालिका कई भी सुरक्षित नहीं है, स्कूल, कालेज, अस्पताल, आफिस, कार्यालय में भी स्त्री सुरक्षित नहीं है, जैसे कि अपनी माँ की पेट में भी वह सुरक्षित नहीं है ।

स्त्री की उन्नती स्त्री से ही होनी चाहिए । स्त्री को स्वयं अपनी शक्ति पर काबू रखने का इच्छाशक्ति होनी चाहिए । स्त्री एक बिकने वाली चीज़ नहीं है । स्त्रीयों की सुरक्षा के लिए आजकल बहुत संविधान यानी बहुत संगठनाऐं आजकल प्रचलित है । लेकिन ये सब अपने इस समूह में प्रार्वतिक नहीं है । आज कल लड़की होने की कारण ही उस बच्ची को गर्भावस्था में ही मिटाया जाता है । पुराने ज़माने में स्त्री की बहुत बडी स्थान देती थी । स्त्री को देवता समान मानते थे ।

आज भारत में स्त्री की अवस्था बहुत शोचनीय है, आज अपनी सिर शरम से झुकती है, क्योंकि अपने दिल्ली में एक लड़की की शोचनीय अवस्था हम लोग देखी थी, उस में अदालत ने उन जानवरों को मृत्युदण्ड दिया, फिर भी आज स्त्री न स्वातंत्र है। स्त्री आज कही भी सुरक्षित नहीं है, अपने माँ की गर्भ में भी ओ सुरक्षित नहीं है। इन नीच जानवरों को कठिन सी कठिन सज़ा देनी चाहिए ।

आज स्त्री जानेवाले मार्ग या विभाग नहीं है । एवरस्थ, हिमालय,बहिराकाश (कल्पना चॉवला),सोनिया गाँधी, मधर टेरिसा सभी क्षेत्रों में स्त्री अपनी शक्ति दिखायी है । लेकिन पुरुष स्त्रीयों को अबला समझती है । स्त्रीयों को अबला समझकर घर में बिठाना नहीं चाहिए, आज स्त्रीयों की सुरक्षा के लिए स्कूल, कॉलेज, कार्यालयों में कराटे, स्वयं पर्याप्त और मानविक विकास की क्लास देनी चाहिए ।

स्त्रीयाँ एक राज्य के लिए सर्वोत्तम एवं सर्वसह है । स्त्रीयाँ अमूल्य रक्नों से भी मूल्य है ।

"The hand that rocks the cradle, the procreator, the mother of tomorrow; a woman shapes the destiny of civilization. Such is the tragic irony of fate, that a beautiful creation such as the girl child is today one of the gravest concerns facing humanity"

Poems..

The Researcher's Limerick

There was a researcher from Partbelth
Thinking of issues on public health
The more he kept thinking
The more 'twas confusing
Oh poor researcher from Partbelth!

One Sunday seemed fun so he bucked up
For topics, his mentor he ranged up
The mentor then told him
Some topics that bored him
Sadly the researcher then backed up.

Finally his brain he could steer
Sample size, objectives were clear
But the Technical guys
Told it wouldn't suffice
From his goals he's far more than near.

Some way a sound topic he did find
With tribal, mental health combined
But Ethics Committee
Slammed some nitty-gritty
Broken, the researcher near died.

And then the researcher from Partbelth
Decided to rather make some wealth
So a limerick he popped
As a writer he topped
No more a researcher from Partbelth.

Almas Kiran Shamim

Created by Ms Almas Kiran Shamim, MPH batch 2012

Mr Klebsiella

Into the ICU he stepped
Knowing not what is kept
In store within and out
Of the patient and the cot

Then came another
Of the kind and brother
Drilling and mixing
Of the lungs a killing

He was learning new sorts
Of living to dodge
Antibiotics of all kinds
and intelligence of all minds

Relishing on juicy enzymes
Feasting on fruity hormones
It spent its days living
Its end not knowing

Then she came in white apron inspiring
Her hands in sterile washing
Who sent our friend draining
Into the sink unsparing

It learnt its lesson a daring
To keep an eye prying
On a nurse who comes smiling
To live a life undying

Ms Joanna Sara Valson

Created by Ms Joanna Sara Valson, MPH Batch 2013

Go confidently in the direction of your dreams. Live the life you have imagined.

First prize winner Pookalam design at Onam celebrations in the BMT wing, SCTIMST

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Feedback may kindly be sent to: **enewsletter@sctimst.ac.in**

(*The articles are invited for the next issue and may kindly be sent to the above mailbox*)