2014, Vol 2; Issue 1 Sree Chitra Tirunal Institute for Medical Sciences & Technology

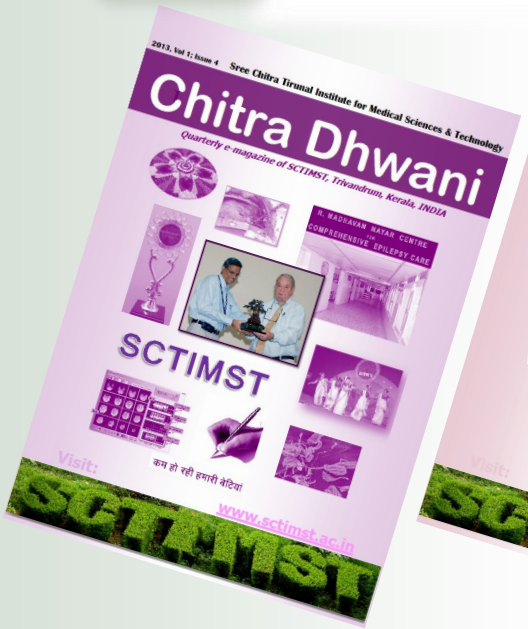
Chitra Dhwani

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



1st ANNIVERSARY

2014, VOL 2, ISSUE 1



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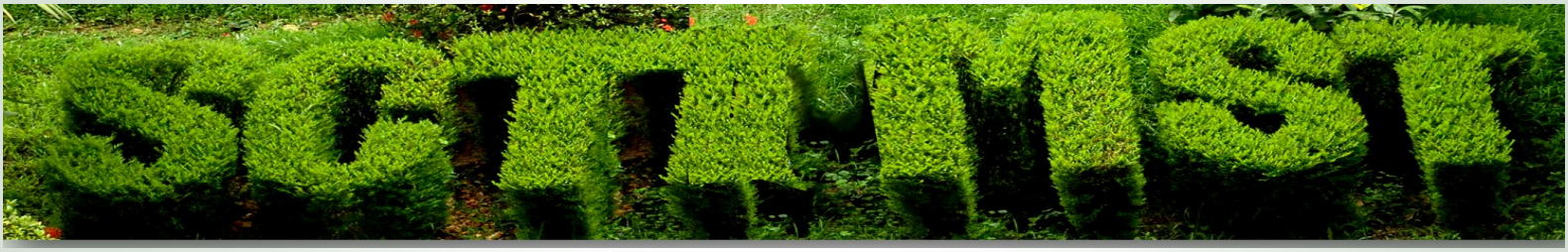

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> ***"Success is not final, failure is not fatal: it is the courage to continue that counts"***

From Editor....

A Letter from the Editor

Dear All,

I am delighted to share that the current issue marks completion of one year, making it the first anniversary of our ezine "**Chitra Dhwani**". I would like to express my gratitude to each and every individual of Chitra family who have shared their invaluable contributions, experiences and suggestions in this magnificent endeavor. I am deeply touched by tremendous support, unanimous acceptance and enduring encouragement by our fellow colleagues which truly helped us in sustaining our enthusiasm and in bringing improvisation in each forthcoming issue. Our dedicated editorial team is committed to work hard, and is continuously evolving novel strategies to match the expectations of everyone at large in providing top quality content in every issue.

It is a privilege and honor to have the special message from our new President of SCTIMST in the current issue of Chitra Dhwani. We, through e-zine, offer our gratitude and unique tribute to HH, who had always shared special bonding with the Institute. The front story on NEUROSURGERY provides an excellent overview on outstanding developments and surgeries performed at SCTIMST, one of the few such super-specialized centers in India. A day at Neurointervention Center describes how efficiently the modern diagnostic tools are used to identify serious ailments in brain that assist clinicians in undertaking appropriate treatment modalities.

In new initiatives, amazing 'HEATS' series workshops are described. Memory lanes is truly inspiring piece of write-up by Dr Girish Menon nearly riding us through his adventurous journey to African continent in service of humanity making literally our dreams come true. The IPR question bank will enlighten us on patent issues. The FUN section as usual is packed with remarkable cartoons, incredible poems, pictures shots taken by camera etc.

We welcome suggestions from you about this endeavor, and continue to look forward to your co-operation, support and blessings to further improvise and make it a continued success.

Thanks and best regards

Kamalesh K Gulia
Editor
Scientist-D & In-charge
Sleep Disorders Research Lab
Comp. Center for Sleep Disorders
SCTIMST

Presidential message

KM Chandrasekhar
President, Institute Body
SCTIMST

I am happy to have been nominated by the Government of India to be the President of the Institute Body of the Sree Chitra Tirunal Institute of Medical Sciences & Technology. I consider it a great honor to be part of an institution that has such a distinguished record of service both in respect of research and hospital functions.

Sree Chitra has created a niche for itself as an institution that stands apart from other with regards to scientific research as well as work culture. Many have been its contributions to technology in medical devices and to research in cardiology and neurology. Through the years, it has maintained standards that are quite different from other similar institutions. Not only has it developed technology and produced learned papers on cutting edge areas of medical research, it has even contributed to the development of industry.

I have had a chance to interact with Heads of Departments in Sree Chitra both in a meeting and by going around the hospital. It is my intention to visit the Poojapura complex also at the earliest, so that I can understand at first hand the work that is being done and the kind of support that the Government needs to provide. I realize also that there are a few pending issues on which decisions cannot be delayed any further.

I look forward to working closely with the Director, the academic faculty and the employees of Sree Chitra in the months and years to come. I am quite convinced that the institution is in a position to add values to the lives of our citizens and to provide significant breakthroughs in medical research. I feel also that a great deal of work remains to be done in the development of medical devices.

We also need to maintain close links with the people and their needs. Then only we can determine our own work programme. We should be in a position to make a difference to all our clientele. We should give them service which is different and which they would value and talk about. I ask for unstinted cooperation from all the stakeholders and employees of Sree Chitra.

Let us carry forward this wonderful institution to still greater heights!

"The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy."

New Directions..

Dr J M Tharakan
Director
SCTIMST

I am happy to note that Chitra Dhwani is bringing out the Annual edition of this already popular in house e-magazine and wish the editorial team all success. As an in-house e-magazine of the Institute, it has more than served the purpose as a medium of communication as well as information and entertainment to suit the tastes of the entire spectrum of Institute employees, with the right mix of science, literature, art, and craft.

I am sure this will metamorphose into the choice destination for all Institute staff to express their hidden talent and implore them to utilize this forum for the same.

Needless to reiterate the fact that along with the duties and responsibilities at the work place, leisure and socially beneficial activities should be an integral part of every day routine of all employees. This will contribute to ones' overall wellbeing and professional satisfaction. In turn, It will reflect in improved performance at the work place as well.

The Institute is on the growth path and even in the most trying times, it is the wholehearted selfless dedication, hard work, cooperation and involvement of its employees that has taken the Institute forward towards progress and achievement and hence the Institute has a vested interest in the wellness of all employees. Chitra Dhwani's success also is the barometer of Institute's health and well being and I look forward to this edition and every subsequent edition of this e-magazine with hope and anticipation.

"A healthy attitude is contagious but don't wait to catch it from others. Be a carrier."

Sasthra Puruskaram..

Prof MS Valiathan, the founding Director, SCTIMST, was presented with the Sasthra Puruskaram 2013, which consists of a citation, a sculpture by Kunhiraman K, and a cash award of Rs 1 lakh, at a function organized by the Kerala State Council for Science, Technology and Environment (KSCSTE) at the University of Kerala Senate Hall. The award is given by the state government to honor outstanding Keralite scientists.

Prof Valiathan is recognized for his visionary role in twinning the sectors of medicine and technology; for his contributions to the field of cardiology, for leading the group of multidisciplinary scientists at SCTIMST to develop medical devices, and for his efforts to conceptualize and initiate studies in Ayurveda among a network of major institutions across India. Prof Valiathan also served as the first Vice-Chancellor of Manipal University and contributed to its rapid growth. He received the prestigious Padma Vibhushan in 2005 and was bestowed several national and international honors.

Rare roses for Extraordinary

the Stalwart Noble pursuits

Congratulations! Sir

Special Feature

Neurosurgery: Cynosure of SCTIMST..

Surgery of the human brain: A challenging task in futuristic healthcare!

History

In the early 70's, there were very few centers offering surgery for diseases of brain and spinal cord in this part of the country. It was in the year 1976 that the combined neurology and neurosurgery services started at SCTIMST as a single department having a total of 46 beds and 2 operation rooms. Dr KK Jain was Professor of Neurosurgery and Dr PT Raman was the Professor of Neurology then. Prof George Mathews took over as Head of the Department in 1978 and he established it as an independent department. Though his main interest was spinal surgery, he can be credited with popularizing trans-sphenoidal pituitary surgery in India. Prof D Rout succeeded him in 1981. Under his stewardship, this department progressed to a center of excellence for cerebrovascular surgery and neuro-oncology. Neurosurgery department was shifted to newly constructed surgical block in 1984 having 44 beds including 12 bedded ICU with all modern facility and 3 well equipped operating rooms. Dr Suresh Nair took over as acting head of the department in 1996. In his guidance, surgery for skull base lesions got a momentum and various skull base approaches were practiced routinely. Prof RN Bhattacharya took over as head in late 1998. The department progressed gradually and the numbers of neurosurgical operations almost doubled. Five additional beds were added to take the total number of beds to fifty.

A fourth well equipped state of the art operating room was commissioned in 2000. Surgery for epilepsy was started in 1995 and a comprehensive center for treatment of epilepsy was established later on. Functional and stereotactic neurosurgery was started with surgery for Parkinson's disease and other movement disorders in 1998. Neuro-endoscopy got a boost after the successful conduct of a workshop by Prof Perneczky in 1999. The current thrust areas in non-medical person's language are surgeries for inflated and weakened blood vessels, various kinds of brain tumors and for different neurological disorders which have very difficult names including cerebrovascular surgery for aneurysms and arteriovenous malformations (AVMs), surgery for vestibular schwannoma and other skull base tumors, surgery for sellar-parasellar lesions, epilepsy surgery, surgery for movement disorders, spinal instrumentation, surgery for stroke and minimally invasive neurosurgery. Our operation theatres are well equipped and have state of the art devices including image guidance, stereotaxy, high end microscopes, intra-operative electrophysiological monitoring devices, CUSA, pneumatic high speed drills and intra-operative ultrasound.

Academics

Postgraduate training program in neurosurgery was started in 1982 and till date 84 qualified neurosurgeons have passed out from this center. These postgraduate students have established themselves and working in different parts of India and abroad as a successful neurosurgeon. Some of them are heading their respective departments. The Neurosurgery Department has been recognized as a center for excellence for training of the overseas residents and junior consultants. Considering the necessity of sub-specialization in neurosurgery, two post doctoral fellowship courses in cerebrovascular and skull base surgery are initiated. Department is aiming to establish a state of art cadaver dissection laboratory, in the future with facilities for training of residents.

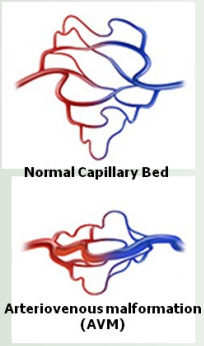
Services - Offered to Public, within institute

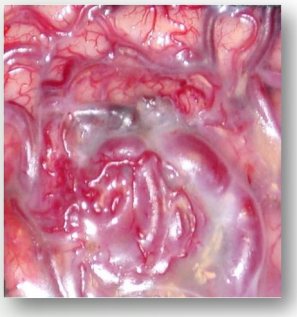
- **Cerebrovascular surgery**
- **Skull Base surgery**
- **Neuro-oncology**
- **Epilepsy surgery**
- **Surgery for Movement Disorder**
- **Surgery for disorders of spine**
- **Pediatric neurosurgery**
- **Neuroendoscopy &**
- **Minimally invasive neurosurgery**

VASCULAR NEUROSURGERY

Aneurysms and Arteriovenous malformations (AVMs) of the brain constitute life-threatening as well as disabling diseases where surgery offers proven cure. Cerebral aneurysm (inflated blood vessels in brain) is a weak area on a blood vessel inside the brain that becomes bigger like a balloon and gets filled with blood; bursting of this out-pouching which is called rupture causes brain damage and only 30% of patients recover. So, timely treatment of this disease is a major step and we have pioneered in this area since early 1980s and this center is considered as a center for excellence in vascular neurosurgery. Micro -surgical clipping is a procedure involving cutting-off flow of blood to the balloon-like dilated vessel with aid of a metallic clip which is put across the neck of the aneurysm using intra-operative microscope assisted with angiogram. The department has a record of operating nearly two thousand aneurysms till date, one of the best in world.

An arteriovenous malformation is a group of blood vessels that are abnormally interconnected with one another. The patient usually seek medical care for recurrent seizures and also as medical emergency when the AVMs rupture causing intra cerebral hemorrhage which can even result in coma. The diagnosis involves high index of suspicion and an angiogram is essential for the diagnosis. Of the three methods of treatment (surgery, embolization and radiotherapy), safe surgical treatment are performed for those group of patients who are amenable for the procedure- surgery ensures the best and lasting results for AVM management.





A representative picture of AVM

SKULL BASE SURGERY

Tumors arising from the bottom part of skull are called skull-base tumors; this area is very complex because every nerve in the body that carries signals to and from the brain crosses the skull base. To add to the importance, the large blood vessels that carry blood both pure and impure travel through the skull base. Skull base surgery is performed for removal of tumors like benign schwannomas (tumor in special cells called schwann cells that produce myelin cover around nerve cells), malignant (cancerous) tumors, tumors which originate from other regions and spread via blood (metastatic tumors) etc. A variety of benign tumors which originate in skull base are treated in the department since early 1980s and the results are comparable with the most modern western centers of the world. Patients with vestibular schwannoma (VS), presents with progressive unilateral hearing loss often preceded by difficulty with speech discrimination, especially when the patient is talking on the telephone. Other symptoms include ringing sensation (tinnitus) in about 70% and unsteady walking. Numbness and weakness of face, loss of taste and limb weakness can also occur in large tumors. Microsurgery (neurosurgical procedures with aid of powerful microscopes) is very essential to be able to navigate around each nerveand blood vessel. Treatment of these tumors involve highly specialized surgical skills as the removal in untrained hands may result in permanent damage to major areas of brain. The expertise in safe and total removal of VS in our department is regarded as one of the best in the country amply evidenced by the referrals we get from across the country. Since Jan 1998, over 700 vestibular schwannomas were operated in the department with a operative mortality close to 1% and these results match current world standards. Emphasis now is more on preservation of neuronal function especially the nerves supplying muscles of facial expression.

The neurosurgery department is empowered with world's best equipments for tackling the tumors of skullbase. The adjuncts also include the endoscope and intra-operative cranial nerve monitoring. This helps to preserve the intra-cranial nerves by facilitating precise dissection of the tumor from the nerve. The World Federation of Neurological Societies (WFNS) skullbase committee has recognized the department as a training center for diseases involving the skullbase. Full time post-doctoral programme for skullbase surgery training are conducted in the department.

EPILEPSY SURGERY

The neurosurgery department in partnership with the neurology department has pioneered into this field and has emerged as a leading institution for managing many forms of medically refractory epilepsy with surgery. The department has performed nearly a thousand surgeries for various form of epilepsy including those for medical temporal sclerosis, hemispherectomy, corpus callosotomies, and lesions. The surgical part of the comprehensive epilepsy care program was launched on the 20th of March 1995, when the first epilepsy surgery was performed in the institute. We are doing the full range of epilepsy surgeries. Department have a series of the most radical and advanced procedures in epilepsy surgery like hemispheric disconnection, multilobar resection, hypothalamic hamartoma, etc. The highlight is to demonstrate that epilepsy surgery is a safe and acceptable procedure by keeping our major morbidity to less than 1 per cent and our mortality to nil over the last consecutive 500 cases.

Total number of Surgical cases - 1484

- **Surgery for Mesial temporal sclerosis - 910**
- **Extra temporal resections - 284**
- **Hemispheric disconnection - 65**
- **Callosotomy - 26**
- **Hypothalamic hamartoma - 20**
- **Vagal Nerve stimulation - 24 cases**
- **Grid placement - 66 cases**
- **Hippocampal depth electrode placement - 38**

ENDOSCOPIC NEUROSURGERY

The surgical endoscope is a pencil shaped instrument which has a camera and light source inside the tube. It has replaced the bulky operating microscope in many areas as it also provides panoramic view of operating field. Neuroendoscopy is an advanced tool

which ensures less invasive, less morbid access for diseases like CSF rhinorrhea (leak of cerebrospinal fluid through nose), endoscopic (Keyhole) removal of pituitary tumors, pineal tumors.

In SCTIMST, since 1980, surgery for pituitary tumor is done via the endonasal route (also called trans-sphenoidal route) with aid of operating microscope. With the addition of the endoscope in our armamentarium in 1999, we are using it for keyhole surgeries of the skull base especially for removal of pituitary adenomas. Coupled with neuro-navigation, it ensures complete and safe removal of tumors which can at times be very large and growing in to depths and both sides of brain. Every year approximately eighty patients undergo keyhole surgery for removal of pituitary adenomas. Most of them have complete recovery from their illness especially visual symptoms and those due to hormonal imbalance.

SURGERY FOR MOVEMENT DISORDERS

The department has performed nearly hundred and fifty surgeries for advanced Parkinsonism, tremors and various forms of dystonias. The surgeries conducted include Deep Brain Stimulation (DBS), Pallidotomy and thalamotomy. This is one of the handful centres of the world where such surgeries are performed. The pre-surgical evaluation is conducted by the Movement Disorder Division.

SPINE SURGERY

Spinal cord tumors form a difficult set of neurosurgical problems. The centre provides surgery for different types of intra- and extra-medullary tumors. We also perform surgery for degenerative diseases of spine.

SURGERY FOR INTRA VENTRICULAR TUMORS

Another area of strength is in the realm of microsurgical excision of intra ventricular tumors and cysts (Colloid cyst, meningiomas, central neurocytoma, sub-ependymal giant cell astrocytoma).

PAEDIATRIC NEUROSURGERY

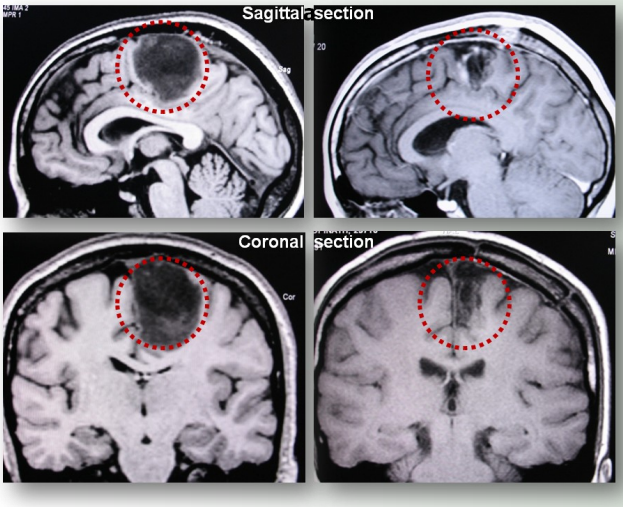
The number of pediatric age group patients requiring neurosurgical interventions has shown an upward trend. Pediatric tumors operated upon are (medulloblastomas, choroid plexus papilloma ependymoma, astrocytoma). A few forms of spinal dysraphism are also treated.

STEREOTACTIC NEUROSURGERY/ MINIMAL ACCESS NEUROSURGERY

The stereotactic system developed is utilized as a basic navigational system to access the depths of brain with minimal invasion of the surrounding normal brain. The Leksell's G frame is utilized for functional neurosurgery, biopsy of certain tumors, aspiration of brain abscess etc.

The department acquired image-guided neuro-navigational system in 2006 ensuring accuracy and completeness of surgery.

Tumor in Pre-operative & Post-operative MRI



Brain tumor before & after the surgery are shown in red circles

RESEARCH AND DEVELOPMENT

Apart from the surgical work the department is involved in research too. It is part of several multi-centric international studies, the surgery for Intracerebral hematoma trial (STICH TRIAL), experimental intra tumoral agents for high grade gliomas. The department is involved in the clinical trials to establish the utility of the indigenous tissue sealant - Fibrin glue, hydroxyapatite burr-hole buttons etc. Work on mucoid vasculopathy and role of genetics in the genesis of cerebral aneurysms is going on.

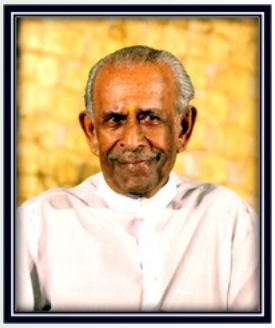
Research products developed by our department

A hydrocephalus shunt system was developed in 1993 in collaboration with Biomedical Technology wing. TTK Company is commercially marketing this as Ceredrain. Indigenous fibrin glue was developed in collaboration with Biomedical Technology wing, and is due for market launch. Burr hole buttons using hydroxyapatite bone substitute too has completed clinical trials and is already available in the market. Future research areas include artificial dural substitutes, non-invasive ICP monitoring devices.

According to Dr Suresh Nair, the Department Head ***"Our motto is to ensure that the best of neurosurgical care is available across the board to one and all. We constantly strive to improve ourselves, in delivering the best of cure and care to patients".***

(Contributed by Dr Suresh Nair, Head of Neurosurgery Department and Dr Krishna Kumar, SCTIMST)

In Memory of...



HH Padmanabhadasa Sree Uthradom Thirunal Marthanda Varma (1922-2013)

The tide recedes but leaves
behind bright seashells on the sand.

The sun goes down, but gentle warmth
still lingers on the land.

The music stops, and yet
It echoes on in sweet refrains…

The kind, powerful & enthusiastic words of HH Sree Uthradam Tirunal Marthanda Varma Maharaja will always remain and reign our hearts….

HH Marthanda Varma was educated privately by a group of 14 tutors in various subjects. He later graduated from the then Travancore University with Economics, Politics and History as specializations in 1943. He was the recipient of the Moncombu Aandi Iyer Gold Medal for the best student in Sanskrit from the varsity. He was respected for his erudition.

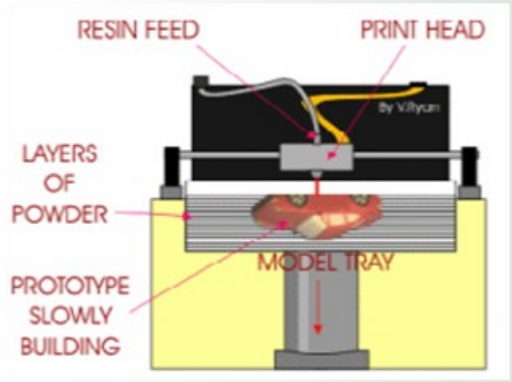
A staunch vegetarian and teetotaler, HH refrained from drinking coffee or tea. A person with varied interests, he has to his credit several trophies won as an amateur horse rider at various places in the country. A keen sportsman, he used to play tennis, hockey, golf, football and polo. An ardent lover of photography, Marthanda Varma learned photography in 1934 when his brother, HH Sree Chithira Thirunal Bala Rama Varma Maharaja, presented him with a camera. Marthanda Varma had a collection of about 4000 pictures. Motoring was his one favorite hobby, he has to his credit of driving more than 40 lakh miles in his Mercedes Benz 180 D that received a name "A mile a minute".

A true philanthropist, HH always nurtured noble ideas aimed to heal and nurture humanity. In an interview taken by Chitra Dhwani editorial team just ten days prior to his demise (which was published as "A Royal message" in 4th issue of 2013), HH had expressed his immense satisfaction the way SCTIMST served people and humanity. The Chitra family is grateful for the contributions of the Royal Family of Travancore. The golden words of HH "Work par excellence amidst strong ideologies" will always echo in our heart, in memory of the Royal!

Emerging Trends..

3D Printing

By around 10000 BC, man started making clay pots and metal axes by hands and wondered at his own creativity. Centuries later, this was replaced by machines and mechanisms which rapidly converted metals and materials to finished goods. He used his visualization power to create multi dimensional drawings in paper and later used various machines to remove parts of material from a solid block and convert into a model as per the drawing. In 1950's, the advent of computer aided designing (CAD) and computer aided manufacturing (CAM) made paradigm shift in the modeling and manufacturing process where fully automatic machines took the material removal process completely without human intervention. It would be just sufficient to make a 2D or 3D model of the part to be machined in a highly human interactive software environment. Numerical methods then converted these drawings into digital codes and precisely controlled these machines. A major drawback of these machines was that, it could only remove the material from a solid block and make the finished part. A major chunk of the material gets removed as waste.



Basic famework of 3D Printing Technology

3D printing or rapid prototyping is a novel technique where a whole object is made by an additive manufacturing technology. As a breakthrough in manufacturing technology, any 3D object can be created by 3D printing. Here, materials are added layer by layer to create the complete object. Advancements in laser technology and polymer technology boosted this technique to make any complex object in a few hours without having assembly of sub-parts. In 1984, Charles Hull received the first patent for developing the 3D printing technology, which used stereo-lithography technique. Various other techniques such as Fused Deposition Modeling, Selective Laser Sintering and multi-jet technology were developed subsequently. Another breakthrough in 3D printing occurred in 2006, where an open source project 'Reprap' was initiated to develop a self replicating 3D printer.

The object to be printed is manufactured layer by layer. A layer of powder of the material is deposited automatically in the model tray. The geometry of a slice of the object is given by the control computer to the print head which applies a resin on the powder, which gets solidified almost instantly. The model tray is moved down to a distance equal to the layer thickness and another layer of power is applied. The process continues until the complete object is developed. Many different materials like ABS plastics, epoxy resins, silver titanium, steel, wax, photo polymers etc may be used for building the object

Based on the type of fusing and layer creation, various methods have been developed for 3D printing such as stereo-lithography, fused deposition modeling, selective laser sintering, multi jet modeling etc. In stereo-lithography, a perforated plate is positioned just below a small column of photo curable liquid polymer. An ultra violet beam traces the geometry of the slice of the object to harden a very thin layer of the photopolymer. The plate is then lowered to a small distance and the process is repeated until complete object is developed. In fused deposition modeling, a hot thermoplastic material is extruded from a print head to create an object. In selective laser sintering, laser is used to selectively fuse together successive layers of a powdered wax, metal, ceramic or nylon material. In multi-jet modeling, a print head sprays a binder solution on successive layers of powder which glues only the required granules together.

Definitely, rapid prototyping will change the world we see around us in future. The houses we live, and the car we ride, may be made of parts printed in situ. Development of a Unmanned Arial Vehicle (UAV) named SULSA by engineers at University of Southampton and sending of a 3D printer to International Space Station (ISS) to make required parts by NASA are testimonial to that. At the same time our laws and policies should be very strict to make sure that, the technology is never misused to make weapons for mass destruction.

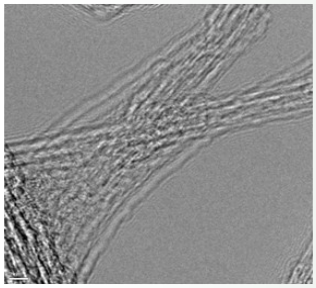
(Contributed by Sarath S Nair, CHVF-C, MPL, BMT wing)

Miniaturized Carbon Nanotube for Medical Applications

Nano world – as envisioned by Feynman in his Nobel lecture, *"There's Plenty of Room at the Bottom"*, in 1959. Decades later, now functional synthetic nanomaterials started painting the nano-world and drive humans as an endangered species. Along came the nanotube, which was one among the key materials to further dream about the nanoworld and develop newer technologies. What you dream for tomorrow: the posters on your wall turn TV or displays; the nostalgia with light and sound on a click, or a brain implant sensually arouse you and give you a virtual feel while you dream, one among them you carry wherever you go. All this could be possible with the development of nanotubes, as it can bend, fold still perform its intended functions.

If this is the real world technologies that we can propose using nanotubes, it can do much more wonders in medical field. Carbon nanotubes are tubes with graphite-like structure where carbon atoms are linked through unconjugated bonds. The tubular structure offers, one dimensionality, mechanical strength, flexibility and release properties. Dimensionality is one of the properties that can be fine tuned .

Miniaturized nanotubes, more correctly represent our imagination of nanotubes, in contrast to commercially available long nanotube bundles. These functionalized nanotubes are more pure, less toxic and highly biocompatible and can produce remarkable physical chemical and biological properties and can be tailor made to our needs. For example, flexible neural electrodes, brain- computer interface, artificial nerves, neural conduits, could be possible. Mimicking proteins, and cells, these nanotubes can be modified and used for energy harvesting and channelizing applications. Recently, it has been demonstrated that, it has high immunomodulatory properties, excellent drug delivery properties, and form composites with other materials like polymers, ceramics , metals and form advanced materials. It is the theme material for developing the field of bio-nano-info technology which is now an emerging discipline.



Single walled carbon nanotubes in Electron Microscopy (Bar = 2nm)

1. *Gribbin, John; Gribbin, Mary (1997). Richard Feynman: A Life in Science. Dutton. p. 170.*
2. *"Why the future don't need us", http://www.wired.com/wired/archive/8.04/joy.html*
3. *US Nano Technology Initiative, http://nano.gov/about-nni*
4. *Kaladhar K et. al., Zero dimensional single walled carbon nanotubes, Angew. Chemie. Intl. Edn., 2013, 52,*

(Dr Kaladhar Kamalasanan, Chitra High Value Fellow D)

A day at the Neurointervention Center!

Located on the first floor of the surgical block of SCTIMST, a moderately new facility provides an impressive glimpse of an elegantly designed hall and meticulously organized sets of interesting machines that appear highly specialized, along bedside, an absolutely pristine scene in a hospital set-up. This is "Neuro intervention center" (NIC), the latest much awaited offshoot of Imaging Sciences and Interventional Radiology department.

Interventional neuroradiology is a medical sub-specialty that treats many of the most complex and dangerous diseases involving the blood vessels of brain, neck, and spine. All these procedures (interventions) are done under x-ray generated image guidance. This form of treatment is done through a small needle puncture at the groin, which eliminates open surgery completely.

In recent times, the management of neurovascular diseases (diseases related to blood vessels of brain) is evolving into a distinct subspecialty cutting across the traditional boundaries of neurosurgery, neuroradiology, intensive care and neurology. Endovascular neuroradiology is now widely recognized as a sub-specialty of radiology. The field has grown rapidly in the past decade and will continue to grow. Much of the growth in interventional neuroradiology has been driven by success of the treatment of cerebral aneurysms (abnormal out-pouching of blood vessels in brain) with detachable coils, and other complicated conditions like arteriovenous malformations (abnormal connections and network of blood vessels) embolization, carotid stent placement, intracranial angioplasty and stent placement and acute ischemic stroke therapy. The efforts by neuroradiologists and collaborating clinicians to develop treatment strategies and methods for these and other high-risk diseases represent a vast, fascinating field of modern medicine. Very sparse availability of such neuro-interventional facility in our country is causing significant difficulty in the timely detection and appropriate management of such complex disease processes. This is creating huge lacunae in training and related research activities.

The dedicated NIC at SCTIMST was created to address all these issues. Imaging Sciences and Interventional Radiology department of our institute is pioneer in starting endovascular interventions and postgraduate training in Neuroradiology in India. To continue that legacy, NIC was started in November 2012. This is the only one facility of this kind in the country with dedicated inpatient and ICU facilities for neurovascular intervention.

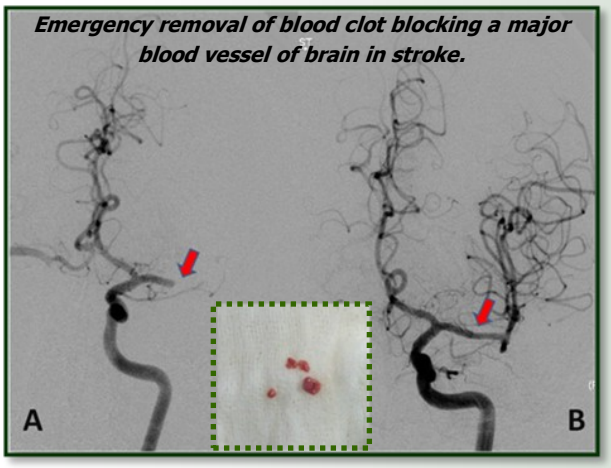
NIC is a tertiary care facility for the comprehensive management of patients suffering from various neuro-vascular disorders. Now, it is well recognized as a premier referral center in neurovascular interventions, its reputation is evidenced by the number of referrals coming in from multiple hospitals across the country.

NIC celebrated its first anniversary recently and today it stands as a pioneering tertiary care facility in the field of neurovascular interventions and research. This eight-bedded facility is equipped with complete range of state-of-the-art top-of-the-line patient monitoring and supportive systems, is designed to provide the most advanced treatment with cutting-edge technology. Of these, five beds are dedicated for the intensive care management to handle complex and critical cases. It offers easy access to all patients from OPD and DSA Cathlab (neuro-intervention suite). The neuro-intervention suite associated with NIC is equipped with the most advanced Digital Subtraction Angiography system with associated digital imaging and networks. This facility has been built as an environment-friendly one with perfect climate control to provide a soothing and comfortable ambience to hasten the healing process.

Successful implementation of applications and solutions for completely digitizing all in-patient documents, daily drug orders and other patient related paper-based tools are helping substantially in reducing the cost of treatment and improves care delivery. During the first year itself, NIC had recorded more than 25% increase in neuro-vascular procedures with less than 1% morbidity and mortality, which is much lower than any international standards.

NIC is managed by radiologists trained in neurovascular interventions along with dedicated nursing and paramedical staff who have the ability to follow and implement safe practices with highest level of technological competency. Neurosurgeons, neurologists, neuro-anesthetists and vascular surgeons form the integral part of neurovascular team in decision making regarding the management of complex neurovascular diseases.

NIC offers all range of neurovascular interventions including aneurysm coiling, flow diverter placement, embolization for cranial and spinal arteriovenous malformations, acute stroke interventions and vascular stenting.



Red arrow in scan A indicates complete blockage of blood vessel, arrow in B shows complete opening of blood vessel after mechanical removal of clot using retrievable stent. Retrieved clots are shown in the inset.

NIC is a great model where the right quality management practices coupled with a strong multidisciplinary co-operative direction can yield great results in patient care, teaching and research.

(Contributed by Dr Jayadevan ER, In-charge of NIC)

Research Highlights ....

Tissue engineering in search of novel matrix to sustain islet cells..

Futuristic strategies for diabetic patient..

Diabetes mellitus is a prevalent health problem in the 21st century and Kerala is the diabetes capital of India. Presently, diabetes is treated by administration of insulin injection or oral hypoglycemic drugs; however, this cannot achieve stable glycemic levels which often end up in long term complications like diabetic nephropathy, retinopathy, neuropathy, arteriosclerosis, and heart disease. Normal glucose homeostasis could be achieved with the transplantation of islets of Langerhans which involves the isolation of pancreatic islets from cadaveric donors. Autologous adipose stem cells (ADSc) owing to its pluripotent nature, offer a valuable source for generating islets to overcome the severe donor scarcity in pancreatic islet cell replacement. It is likely that the destruction of the extracellular matrix (ECM) of islets occurs during the period of their isolation which often impair the function and survival of islet cells. Thus, there is a need to find a suitable substrate that provides favorable biological microenvironment to preserve islets for long term culture and circumvent the shortage of islets.

Tissue engineering strategy to use scaffolds as substitute for ECM is a key to the problem. In the present study a three dimensional (3D) biodegradable scaffold was fabricated using natural polymers- dextran and gelatin (DEXGEL) for differentiation of adipose stem cells to islet like clusters (ILCs). Specific growth factor cocktails were employed to aid the ADSc differentiation to ILCs. The ILCs differentiated on DEXGEL scaffold exhibited characteristic islet morphology, and expressed islet specific hormones (insulin, glucagon and somatostatin). The insulin secretion in response to glucose challenge and viability of ILCs on DEXGEL scaffold were significantly higher in comparison to ILCs cultured using the conventional method. According to Dr Prabha D Nair, the PI and Scientist-in-charge of the program, "the results demonstrated for the first time that DEXGEL scaffold simulated an extracellular environment for effective differentiation of rabbit adipose stem cells to ILCs". This study which was part of the PhD program of Ms Neena Aloysius was published recently in Tissue Engineering (Part A), 2013.

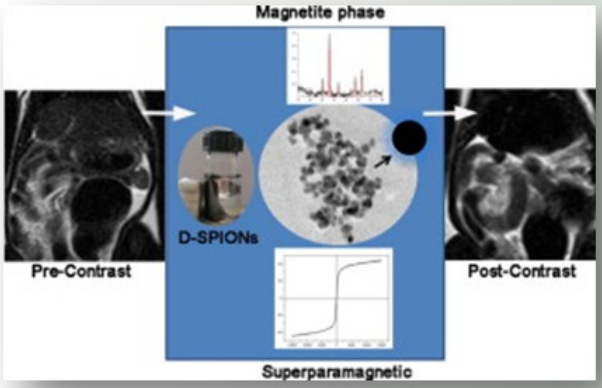
An extension of the study was also selected as the Best Paper (Health Sciences) at the recent Kerala Science Congress 2014.

Ref: *Aloysious N, Nair PD.* ***Tissue Engineering Part A****. 2013; DOI:10.1089/ten.TEA.2012.0615*

In vivo MR imaging of liver fibrosis:

Magnetic particles..

Liver fibrosis is a disease caused mainly due to alcohol abuse, non-alcoholic hepatitis and infection. Advanced liver fibrosis results in cirrhosis, liver failure, and portal hypertension and often requires liver transplantation. Right now a liver biopsy is the most accurate way to diagnose the fibrotic stages. Why can't we think of alternative noninvasive methods like imaging? If you have specific materials that could give enhanced signal contrast of the fibrosed tissue compared to surrounding tissue, the diagnosis would be easier. This is where the role of targeted nanomaterial based contrast agents play a role.



Biophotonics and Imaging lab has made an interesting research in this direction and reported that dextran stabilized iron oxide nanomaterials with size of the order of 50 nm can diagnose liver fibrosis at a very early stage using MRI imaging (1). This work on polysaccharide-modified superparamagnetic iron oxide nanoparticles that can be used as a contrast agent in magnetic resonance imaging has been highlighted by Nature India under the head Magnetic nanoparticles for liver imaging (2).

Ref:

1. *Ariya Saraswathy, Shaiju S Nazeer, N Nimi, S Arumugam, SJ Shenoy, RS Jayasree.* ***Carbohydrate Polymers*** *101 (2014) 760– 768.*
2. *Ariya Saraswathy, Shaiju S Nazeer, Nimi N, Sabareeswaran A, Sachin J Shenoy, Jayasree RS.* ***Nature India****, December, 2013, doi:10.1038/ nindia.2013.164*

"Hope is the thing with feathers that perches in the soul, and sings the tunes without the words, and never stops at all."

Research Highlights ....

Factors Affecting Non-Adherence among Unipolar Depression Patients:

Indian experience..

Adherence ("extent to which a person's behavior corresponds with medical or health advice provided by a health care provider") to therapy is emerging as a major public health challenge globally-both for communicable (tuberculosis, HIV/AIDS) and non-communicable (depression, diabetes) diseases. The consequences of poor/non-adherence are extensive. It negatively impacts treatment effectiveness thus resulting in poor therapeutic outcomes. Non-adherence in some instances could result in serious complications requiring the individual to be hospitalized.

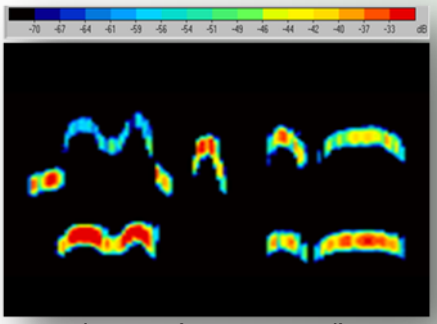
A questionnaire incorporating *"the 8-item Morisky Medication Adherence Scale (MMAS)"* designed by Dr RP Varma and Dr Sohini Banerjee (the Principal Investigators) was administered in a total of 239 patients with unipolar depression. Results indicated that women were nearly three times at a higher risk of being non-adherent compared to men. The non-adherent group compared to the adherent group was significantly more likely to consume extra medicines than the recommended amount and had lower internal locus of control. Adherence to prescribed treatment in an out-patient clinical setting was a problem among patients with unipolar depression. Suitable interventions on individuals with the above mentioned attributes are required in India and in similar settings where non-adherence to depression therapy is an important public health problem. This study indicated the need for inter-sectoral programmes linking health departments with other departments such as public works department (improvements in transportation and communication system) to ameliorate the problem of non-adherence of depression therapy.

Ref: *Sohini Banerjee and Ravi Prasad Varma.* ***Depression Research and Treatment*** *Volume 2013, Article ID 809542, 12 pages*

Sleep loss during pregnancy has grave consequences to newborn babies:

Indicators from animal studies..

Insufficient sleep has become a worldwide phenomenon in the current living style. To evaluate the role of sleep loss during late pregnancy on the offspring's cognitive ability, a study was designed on rat models. Rat neonates emit ultrasonic vocalization (USV) when isolated from their mother or in distressed condition which is inaudible to human. USVs can be utilized as a tool to measure anxiety of rat neonates. One component of sleep known as rapid eye movement (REM) sleep was deprived in one group of pregnant rats for 22 hours daily during gestational days 14 to 20. Another set of animals were simultaneously run as sham control group.



Ultrasonic vocalizations (acoustic signal) spectrogram from rat pups of REM sleep mothers: Distress songs.

After parturition USVs of the pups were recorded on postnatal days 1-21. They were recorded using special microphone (Avisoft Bioacoustics, Germany) and analyzed using SASPro software. In control pups, the calling rate was low during initial days, increasing to peak values on postnatal days 9 to 11 and then decreasing on remaining days. However, REM sleep deprived group pups, showed not only reduction in calling rate but also delay in days to make peak calls. Moreover, the calling in these pups did not cease on postnatal days 21. Thus, Reduction in calls and delayed vocalization response and altered temporal profile of USVs in REM sleep deprived pups shows that maternal sleep plays an important role in emotional behavior of the neonates.

This work was published in PLoS One and was also selected as the Best Paper at the SEIB 2013 Conference. The result published in PLoS One was also reported by e-Telegraph*.

*http://epaper.telegraphindia.com/paper/4-0-26@01@2014-1001.html

Ref: *Gulia KK, Patel N, Radhakrishnan A, Kumar VM.* ***PLoS One*** *2014 Jan 13;9(1):e84948. doi: 10.1371/ journal.pone.0084948. eCollection 2014.*

Memory Lanes...

A South African Safari.....

I returned after one year of secondment leave from South Africa (SA) in March 2013. Among family and friends, my six-year old son is often asked to choose between India and SA. His response is prompt and consistent. With hordes of friends and family to play around, uninhibited freedom to roam around, he has never hesitated in his response. He prefers Trivandrum, India. I wish I were so certain …

My decision to go to SA raised many a eyebrow. Why Africa of all the places? I was showered with unsolicited advice about crime rates, risk of HIV transmission etc. Hardly few of my well-wishers had been to Africa, but then they had read or heard enough to dissuade me from going to the dark continent. One year hence, I can say for sure – it is not a dark continent. South Africa has open plains and ancient mountains that are unmarred by man-made mega-structures. The air itself is special and can easily make one believe that it is the cradle of mankind. The people are warm and welcoming. It remains dark because we have not thrown light nor attempted to explore it. But then prior to 1994 neither did they allow us to do so.

South Africa is rich and poor, it is first world and third world, it is developed as well as developing. It is a rainbow nation with a unique blend of peculiarities. My knowledge about SA was limited to watching live TV coverage of cricket matches held in Cape Town, Durban and other exotic locations. The picturesque grounds and the affluent-looking environment are really tempting. I would be wrong if I deny that my decision to go to SA was inspired by these sights. One year hence, I understand SA better; it is much more than cricket grounds and beer drinking crowds. It was much different from what I thought – but then I have no regrets.

Why South Africa?

South Africa has a shortage of super specialists as the training programs are few and the few trained specialists prefer to work in the private hospitals. State-of-the-art treatment is limited to few government institutes in Johannesburg, Cape Town, Pretoria and Durban. Klerksdorp is a city located in the North West Province of SA and is 180 km away (2 hrs by road) from Johannesburg, the nearest airport. The Klerksdorp-Tshephong Hospital, the only government hospital in Klerksdorp caters to all the major cities in the Province and is the main referral centre for a population of nearly 3 million. The hospital, which has two blocks, has a combined bed strength of nearly 500 beds and has all the basic medical and surgical specialties. During the apartheid days, the entire country was divided by an invisible colour line – thus we had two sets for everything – one for the white population, one for the rest. Klerksdorp too had two hospitals the Klerksdorp provincial hospital located in the central business district and the Tshepong hospital located near the black township. The specialties too were duplicated - and we had separate departments for medicine, surgery, etc in each hospital. Post 1994, the two hospitals were amalgamated. Medicine, Surgery and emergency services were shifted to Tshepong, OBG, ortho, ENT, ophthalmology etc were retained at Klerksdorp. However, the hospital lacks major super-specialities like cardiology, cardiac surgery, neurology and neurosurgery and all the patients get referred to the Witwatersrand University, Johannesburg. The Klerksdorp- Tshepong hospital was recently upgraded as a tertiary referral centre in association with the Wits University, Johannesburg. The tertiary care coordinator in charge of developing the super-speciality services is a close childhood friend of mine and that probably explains my decision to choose the Klerksdorp-Tshepong hospital in Klerksdorp, South Africa.

The initial days

Prior to my arrival, neurosurgery was nonexistent in Klerksdorp and all patients used to be referred to Johannesberg. My mandate was to develop a fully fledged functioning neurosurgery department. Mahikeng, the capital city of the northwest province is around 200 kms from Klerksdorp and has a small hospital there. One year prior, an attempt was made to start neurosurgery at Mafikeng and almost all the theatre equipments and instruments were purchased. For some technical reasons, it failed to take off and thankfully the hospital authorities there agreed to shift the entire set of instruments to Klerksdorp. The instruments thus reached before my arrival.

The OT complexes in both the hospitals are huge and spacious and have provisions to accommodate around eight surgeons at a given time. I was allotted a dedicated Operation theatre at Tshepong hospital and I could share one theatre with our ENT surgeon in Klerksdorp. A dedicated neurosurgery ward was commissioned six months after my arrival as my patients used to be scattered around in both the hospitals prior to that. Daily rounds virtually meant a tour of both the hospital complexes, that was time consuming and bit frustrating at times. I was allotted three medical officers during my tenure. Dr Onah from Nigeria, Dr Mundele from Congo and Dr Eddy, a SA citizen. All three had no prior neurosurgery experience, but by the time I left, they were competent enough to do simple craniotomies. They had different levels of

expertise, different personalities, and different backgrounds. I taught them a little of neurosurgery but I learnt a lot about Africa and Africans from them.

Challenges

My challenges in SA were different. In the ward and in the ICU, among staff nurses and paramedicals, and among most of the junior doctors, neurosurgery remains an enigma. Lack of exposure to neurosurgery had created a sense of negativity towards neurosurgery. The need for promptness in action and the belief that with timely intervention, lives can be saved was an important message that I found hard to sell. Inspiring them and motivating them to adapt the neurosurgical mindset was an important challenge.

In the operation theatre but for me and Sr Tshidi who had prior neuro-experience in Australia, the rest were never exposed to neurosurgery. The paramedical staffs were in awe of neurosurgery. Due to certain technical reasons during my tenure, the anesthesia department did not have senior faculty members. The juniors were apprehensive and reluctant initially. The OT was well equipped, instruments brand new, but the personnel inexperienced. My initial months went in training them, right from patient positioning to draping to closure. By the end of a year, the junior colleagues in anesthesia were only too eager to help with my case. I wish to believe that it was my confidence and my results which brought about the transition but the truth is that they were fast learners. What they lacked in experience they made up with their eagerness and commitment.

The native blacks are poor but what is surprising is that they don't mind being so. They do not make great plans about their future and live life on a daily basis - from meal to meal. Years of suppression has made them so indifferent that nothing appears to shake them. News of imminent catastrophe evokes not more than a transient wrinkle on their forehead. Consent taking was never an issue, it was an all or none phenomenon. They would ask about the procedures and decide in a flash – either a strong yes or a definite no. No pending decisions, consultations with family members, second opinion hunting. Death or the fear of death hardly shakes them. They have carefree attitude towards life, not only others, but even their own. Life had a slow relaxing pace there, Never in a hurry, Never complaining. They were taught not to complain, just to suffer. Time was never a premium and one would never see them pushing or struggling to jump the queue. What was more relieving for me as a surgeon was their pain tolerance. Their thresholds for pain are high and no matter what deficits they have they would welcome you for rounds with a smile. Many

Dr Girish Menon is standing 3rd from left

of them had more confidence in their deficit recovery than I had. Their ambitions and expectations from life are minimal. They do not make many appointments and so they seldom get disappointed. I would have added a few years to the life of a few natives, but what I gained in terms of worldly wisdom from them is invaluable.

For the records

I did my first neurosurgical operation on the first of April 2012– a 20 year-old male with a depressed frontal fracture and an underlying contusion. Thereafter until the last day i.e., the 15th of March 2013, I performed 252 surgeries. These included 199 cranial procedures and 49 spinal procedures. Trauma and spine involved almost 75% of my operative work but I also managed to do some complex surgeries which included aneurysms, meningiomas and gliomas.

The scare of HIV

HIV is a major health concern in SA not only from a public health perspective but from a doctor's personal perspective too. The mental trauma following an accidental exposure is compounded by the dreaded thought of having to take post exposure prophylaxis – PEP as it is called. A medical student would be advised post exposure prophylaxis at least 3- 4 times during their student days. That many one of them hardly ever complete the course of PEP is another issue. The side effects of these drugs are so prohibitive. However careful one may be, an accidental exposure is inevitable, as, on an average one out of every four patients visiting the hospital is HIV

positive. It need not be a needle prick, it could be a splash on to the eyes or contamination with CSF. Experienced doctors do not take PEP. Not because they do not get accidental exposure, but because with years they have realized that the probability of contracting HIV through this manner is almost nonexistent. Statistically, it is true but in practically, it seldom happens. One needs to contract HIV the right royal way!!. Nevertheless, an exposure does give you sleepless nights even if it is a from an HIV negative patient. I can vouch for that myself. More worrying than HIV was the prevalence of tuberculosis – not the ordinary ones but the multidrug resistant and the extreme drug resistant ones. These patients were allotted separate wards and fortunately, I seldom used to get calls from these wards.

Crime in SA

One major drawback of living in SA is the constant fear of being robbed, mugged or hijacked. Again, the statistical probability of that happening is quite less, but the worry remains. One develops a kind of paranoia, locking your door twice, checking your car doors twice after exiting, avoiding lonely places and dreading darkness. The instances have drastically reduced and in the city where I lived, the crime rate was much lower than in some of our own cities. The crime rates in our country too are high but we are not branded as a violent nation. I must admit that South Africans have been on the wrong end of an unfavorable media which tends to highlights each crime. But there is no denying that violent streak.

Unforgettable moments

Of the many memories a few stand out. Mrs X, a white Afrikaner lady was brought in a drowsy state with weakness of the right side. She had remained so for a few days in a peripheral hospital and the referral was delayed due to lack of transportation. The whole family had turned up including the father, two sons and two daughters. They were not too keen to come to a government hospital but had run out of resources or insurance to approach a private hospital. They were pure bred Afrikaners and did not understand English. I had a problem communicating with them. She had a large brain tumour requiring immediate surgery. It was the first time the family had faced such a situation and they were extremely reluctant for surgery. It was one of their younger sons who knew a bit of English who understood the implications and convinced the rest to consent for surgery. Post-surgery, once she recovered to a near normal state, their joy knew no bounds. That family was so grateful and used to shower me with blessings each time they came for a review. And then she baked me a cake during last Xmas. I have had similar experience back home, but in an alien land it felt really good. A decade ago they would have refused to be examined by a colored doctor like me, but now the color barrier had dissolved. It firmly established my earlier conviction that all barriers, geographical, or racial or religious are bound to melt with care and compassion.

Yet another occasion was one where a young man was admitted with a bad head injury secondary to assault. An affinity for crime and violence especially of a gruesome nature is an extremely agonizing hallmark of their society. I had maintained a general apathy for such patients admitted with assault. He had a skull fracture with an underlying hematoma. But his vital parameters and general condition looked so poor that I decided against surgery. To be honest, I was prejudiced and did not want to give him a chance. On my advice the junior doctor spoke to his wife about organ donation as his imminent demise was a foregone conclusion. But one junior intern contradicted my examination findings and insisted that I give him a chance. She literally forced me to shift the patient to the theatre. He did well and is doing well. I try to avoid eye contact with his wife when they come for follow up. It was embarrassing for me to face both the patient's wife as well as the junior intern. I had learnt my lesson though.

Back Again?

I am often asked this question and in fact many were surprised when I came back. I had my reasons to come back. But I wouldn't mind another stint any time for any amount of time!!

Girish Menon

(Dr Girish Menon is Professor in Dept of Neurosurgery, SCTIMST)

Quiz 1

Identify the symbol shown above. What does it signify? Please send your entries to mailbox: enewsletter@sctimst.ac.in

The winners (five) will be announced in next issue of Chitra Dhwani.

New Initiatives: HEATS..

Hospital Equipment Awareness Training Series: HEATS

In any modern hospital, the use of ultra-modern equipments are inevitable. The safe use and effective maintenance of these equipments is vested in the hands of the Clinical Engineering Department. At SCTIMST the electronic section of DCE has to maintain more than 45,000 items worth more than 125 crore rupees. Through our several studies to improve the quality and standard of clinical care, we came to a conclusion that the primary responsibility for the care and maintenance of equipment rest with the user.

After a series of discussions, it was planned to arrange continuous training and proper awareness to various users like Doctors, Nurses, Technicians, Engineers, and others who handle the equipment in their respective level, by well-experienced authorized experts from the manufacturer or supplier of equipment or in-house faculty.

Thus a seminar series named "HEATS" (Hospital Equipment Awareness Training Series) was born. The main objective of this series is to arrange a common platform for all the users to have a brainstorming session to deliver a healthy and sustainable life for Equipments. Now, so far we had organized 6 series of HEATS. These series revealed that a harmonious and coordinated work of all groups could exhibit a healthy environment for equipments.

HEATS-1	Patient Monitoring in Transforming Health Care
HEATS-2	Know Your Anesthesia Machine
HEATS-3	ICU Ventilators a Life Supporting Device
HEATS-4	Workshop on Microscopy
HEATS-5	Digital Board
HEATS-6	Basic Physics on X-ray Imaging

Heats-1 conducted on 30th & 31st of August 2013, inaugurated by our Director Prof Dr Jagan Mohan Tharakan was a great success. The training was on Patient Monitoring with a Title **"Patient Monitoring in Transforming Health Care".** More than 100 delegates attended the training. National Clinical Application and Technical Experts from M/s Philips took the Training sessions, as institute is having more than 100 Philips monitors of various models. Mr Prabhakar Tendolkar, Clinical Application Manager - Philips Healthcare and his team, handled most of the application class. On the second day, the participants were divided into small sub-groups depending on their category and hands-on training was given according to their level. The result was overwhelming. In fact, there is a constant request from users for arranging a repeated training program now.

HEATS-2 was organized on 15th & 16th of November 2013 on Anesthesia Machine Titled **"Know Your Anesthesia Machine".** Heats -2 was inaugurated by Dr Sankar Kumar R (Medical Superintendent) and an overview on the seminar was given by Dr Rupa Sreedhar, Professor Anesthesiology. DS Harisha, Wipro GE India, handled the class, as the training was concentrated on Aestiva machine. The response from our PG students and Doctors was commendable. They took active participation in the second day's hands-on training. They themselves took initiative in dismantling the whole anesthesia machines and re-assembling the same. Due to their deep involvement in the task, they had the opportunity of doing the complete protocol of leak test and safety test procedures by themselves.

HEATS-3 was arranged on 28th & 29th November on ICU Ventilators with a title **"ICU Ventilators a Life Supporting Device"**. It was inaugurated by Medical Superintendent, Dr Sankar Kumar R

New Initiatives: HEATS

followed by a presentation by Dr Manikandan S about the history of ventilators. The National level experts from M/s MAQUET did the technical presentation and hands-on training session. The program was excellent. The M Tech students of Clinical Engineering (SCTIMST) have taken an active role in the hands on training program.

HEATS-4 was on 20th & 21st of December 2013 with a title **"Workshop on Microscopy".** By seeing the performance of HEATS and considering the need of imparting training for microscopes, Dr Sandhyamani S, Head of Dept Pathology, took the leadership to organize this training series jointly with DCE. Dr Balaraman Nair inaugurated the seminar. Participants from almost all major hospitals & research centers in India attended the seminar. Experts from M/s Leica and M/s Olympus handled classes. Hands-on training on the microscopes were also given at BMT wing.

HEATS–5 was on 23rd January 2014 by M/s SHARP Cochin with a title **"Digital Board"**. This was one day hands-on training and demonstration on a touch interactive digital Board. Director, Dean, HODs of various departments attended the demonstration.

HEATS-6 was on 15th February 2014 with a title **"Basic Physics on X-ray Imaging"** and Dr Jawahar SK (AMO) inaugurated the seminar. During the technical presentation, Mr Joyi K, Technical Assistant (IS & IR), clearly explained the functions with detailed circuits of the internal parts of X-ray machine. Dr PP Saramma (Senior Lecturer in Nursing) presented a momento to the speaker. The feedback on this training was overwhelming.

DCE hopes that HEATS will continue its journey and pave the way in molding the structure of maintenance process. Let us always remember that '***Knowledge is the key to Quality'.***

(Contributed by Koruthu P Varughese, Engineer G & Acting HOD DCE)

Chitra's Stars: Awards/ Honours

National Bioscience Award 2010

Dr Ashalatha Radhakrishnan, Department of Neurology, SCTIMST, received **National Bioscience Award** for Career Development 2010 in recognition of her significant contribution in the development of state-of-the-art technology in the management of refractory epilepsy patients. Her contributions include developing EEG co-registration to functional MRI, diffusion tensor imaging with fiber tracking and voxel based morphometry aiding in the management of patients with refractory epilepsy.

Nightingale

Mrs Saramma Antony George (Code No:589), Ward Sister, Cardiac Surgery Intensive Care Unit was conferred the **'Best Nurse Award'** by Trained Nurses Association of India, Kerala State Branch for the year 2013. It is an extremely proud and happy moment for the Nursing Service Division and the entire SCTIMST family.

Chitra's Stars: Awards for Oral Presentations

Mr Durgadas Cherukaraveedu, PhD Scholar, Biosurface Technology Division (Guide: Dr K Sreenivasan & Dr Chandra P Sharma) has won the **Best Presentation Award** in the MRSI Annual Technical Meeting - 2013 (organised by Materials Research Society of India, Trivandrum Chapter) held on November 29, 2013 at Vikram Sarabhai Space Centre, Thiruvananthapuram for the paper entitled "**The emerging nanomaterials applications in metastatic cancer**".

Ms Lakshmi R Nair, PhD Scholar, Tissue Culture Laboratory, BMT Wing (Guide: Dr TV Kumary) has won the **BAJPAI-SAHA AWARD** for the **best student paper presentation** during the XXIV National Conference of the Society for Biomaterials and Artificial Organs (India) for the work entitled "**Differentiation of human umbilical cord mesenchymal stem cells towards myocardial lineage using a cytidine analogue on thermo-responsive polymer" at** the II International Conference on Medical Materials, Devices & Regenerative Medicine, January 11-13, 2014, Kathmandu, Nepal.

Ms Neena Aloysious, PhD Scholar, Division of Tissue Engineering and Regeneration Technologies - DTERT (Guide: Dr Prabha D Nair), won the **Best Paper Award in Health Sciences,** for the paper authored by Neena Aloysius & Prabha D Nair, and entitled **"The role of scaffold in mimicking the biological matrix of islets: Implications for islet transplantation in treatment of diabetes mellitus"**, which was presented (Oral) at the XXVI Kerala Science Congress at Kerala Veterinary and Animal Sciences University, Wayanad, January 28-31, 2014**.**

Chitra's Stars: Awards for Poster Presentations

Deepthi RS, PhD scholar, Division of Cellular & Molecular Cardiology (Guide: Dr R Renuka Nair) won the **Best Poster Award** in Life science for work entitled "**Human Cardiosphere Derived Cells have selective advantage over Bone marrow Mesenchymal Stem cells in myocardial regeneration"** (Deepthi RS, R Renuka Nair, K Jayakumar) at the 26th Kerala Science Congress, Kerala Veterinary and Animal Sciences University, Wayanad, January 28-31, 2014**.**

"A dream becomes a goal when action is taken toward its achievement".

Chitra's Stars: Awards for Poster Presentations

Ms Sandhya S, PhD scholar Bioceramics Laboratory, BMT Wing (Guide: Dr HK Varma) has won the **Best Poster Award** for work entitled "**Development of a Versatile Drug Eluting Bioactive Bone Filler Cement**" (Sandhya S, Sureshbabu S, Varma HK, Manoj Komath) in the International Union of Material Research Societies - International Conference in Asia 2013 held at JN Tata Auditorium, IISc, Bangalore, December 16-20, 2013.

Mr Renjith P Nair, PhD scholar (Guide: Dr Lissy Krishnan) received the **Best Poster Award** in the Health Sciences for the paper titled "**Novel tissue engineering strategy for accelerated and scarless healing of wounds in diabetic rabbits**" co authored by Renjith P Nair, V Kalliyana Krishnan and Lissy Krishnan during the Kerala Science Congress, January 28-31, 2014.

Mr Niraj Patel (JRF), Sleep Disorders Research Lab, BMT wing, for winning the **Best Poster Award** for the work entitled "**Reduced ultrasonic vocalizations in pups born to REM sleep deprived mothers in rat model: An early marker for depression!"** (N Patel, Arathi R, KK Gulia, VM Kumar) at the IN Conference on Integrative & Comparative Physiology & 1st Annual meeting of the SEIB held in Kerala University, December 18-20, 2013.

Mr Saifudeen Ismael, PhD scholar, Division of Cellular & Molecular Cardiology (Guide: Dr R Renuka Nair), won the **Best Poster Award** for work entitled "**Reactivation of fatty acid metabolism by medium chain triglycerides modulates oxidative stress and promotes cardiac antiremodeling in spontaneously hypertensive rat**" (S Ismael, Harikrishnan VS, Renuka Nair) at the 6th International Conference on Recent Advances in Cardiovascular Sciences held at Delhi Institute of Pharmaceutical Sciences and Research, New Delhi, January 31st to February 1st, 2014.

Technical Excellence

Mr Pradeep Kumar SS joined SCTIMST as Technical Assistant in the year 1998 at the Division of Microbiology, Biomedical Technology Wing and till date he has been associated with the Department. He joined the Division when the department was at its infancy. In his years at the Division he has proved himself to be a person of sound technical knowledge who has always been willing to take up any challenge and equip himself with the knowledge needed to execute the job entrusted to him. His attitude and technical acumen has earned him the praise of our external auditors from France. His contributions have resulted in a number of publications, a patent and a product. His humble nature and hard work makes him stand out among his peers.

Service Awards: serving for 1, 2 and 3 decades..

25/ 30 years of service

10 years of service

20 years of service

10 years of service

10/ 20/ 30 years of service

Chitra's Stars.. Excellent acts full of bravery..

The Institute appreciates and congratulates **Sri Sugathan L (SM)**, Security Guard-B, Employee Code: 1702 for attending the **Republic Day Parade** at New Delhi on behalf of Ex-Service Personnel and being one among the only Five people selected from Kerala State.

Ms Remy Rose Joy, IInd year student Diploma NeuroNursing, Code No: 6514, had the privilege to witness the **Republic Day Parade**, 2014 from the Prime Minister's Box at Rajpath, as a selected guest, one among 67 students from all over India, first of its kind in the history of our Institute!

Ms Remy did her graduation in Nursing from Manipal College of Nursing, Manipal and schooling in Sarvodaya Vidyalaya, Nalanchira.

Courage

"Courage is what it takes to stand up to others
Courage is what it takes to make your own decisions
Courage is what it takes to succeed
But it also takes courage to sit down and listen
It also takes courage to admit a loss
It will take courage to respect someone others don't
Courage is needed to withstand peer pressure
Courage is essential in your journey through life."

Hanson Chen

Special incident report of brave timely action!

Ms Rakhi Rajendran, staff Nurse (Neurointervention Centre Project, Code No: 3527), and an alumni of this Institute (Diploma in Cardiovascular and Thoracic nursing, 2010), saved the life of an unknown co-bus passenger by timely identifying and instituting cardio-pulmonary resuscitation (CPR).

Report of the incident:

One cold morning in last December, at 6.30 am Miss Rakhi was travelling in a KSRTC bus from Thampanoor to Medical College, after paying a visit to Guruvayoor temple. At PMG junction, the bus suddenly stopped because a middle aged male person collapsed in the bus. Miss Rakhi along with two other nurses from Medical college, rushed to the person and found out that he had no pulse and respiration, and also not responding to calls. Rakhi alone boldly came forward and initiated appropriate chest compressions and mouth to mouth respirations for two minutes. Then pulse returned and person started moving lower limbs and opened his eyes. Meanwhile, the '108 ambulance' arrived and the person was transferred to Medical College casualty. Director gave a letter of appreciation to Ms Rakhi.

"Loyalty and devotion lead to bravery. Bravery leads to the spirit of self-sacrifice. The spirit of self-sacrifice creates trust in the power of love."

Events held at SCTMST..

Republic Day 2014 Celebrations

Saffron: courage and sacrifice
White: truth, peace and purity
Green : prosperity
Ashok Chakra: Laws of Dharma (righteousness)

Events held at SCTMST..

Back to Basics: Short Course on Basics of Cardiac Interventions

Indo-German Symposium on Neurorehabilitation and Pain Management

Events held at SCTMST..

National Conference on Paediatric Cardiac Nursing Clinical Updates

Microscopy Workshop: HEATS 4

Events held at SCTMST..

Continuing Nursing Education: Basic Concepts in Interventional Cardiology

Animal Handling Training Program

An important venture by Division of Laboratory Animal Science, BMT wing, SCTIMST

Since 2006, the Division of Laboratory Animal Science (DLAS) conducts a biannual-one week Certificate Course in Ethical Handling of Laboratory Rodents and Rabbits. Born as a brain child of Dr AC Fernandez, PhD, who was the Scientist-in-Charge of DLAS, the course has over the years, eventually adopted several changes and amendments in its contents and modules.

The course aims to deliver the scientific reasons of why and how the laboratory animals need to be handled with care to groom the young breed of scientists with basic qualification of post graduation in biological sciences. Moreover, this course imparts hands-on training on scientific handling and care of laboratory animals, with several demonstrational videos on the basic natural and normal behaviour of laboratory animals. The video sessions also vividly demonstrates signs of health, basic techniques of restraint, bleeding, routes of administration of drugs, assessment of pain and distress and several scoring systems, and much more which includes a theory class on anesthesia and euthanasia with focus to other animal species also involved in Biomedical Research.

The division has so far trained more than 300 candidates and the demand for this course is very high so that it is offered on a first-come-first-serve basis. The candidates from research institutes in Trivandrum and other districts such as Ernakulam, Trichur, Kozhikode and Kottayam and even from Northern states such as Rajasthan and Goa, and neighboring states such as Karnataka and Tamil Nadu points towards the lack of such courses available to the budding talents in Bio Medical research.

The efforts to disseminate the training are also appreciated highly by CPCSEA, Laboratory Animals Limited, United Kingdom and many more organizations working in this area globally. Dr Patricia V Turner, DVM from The University of

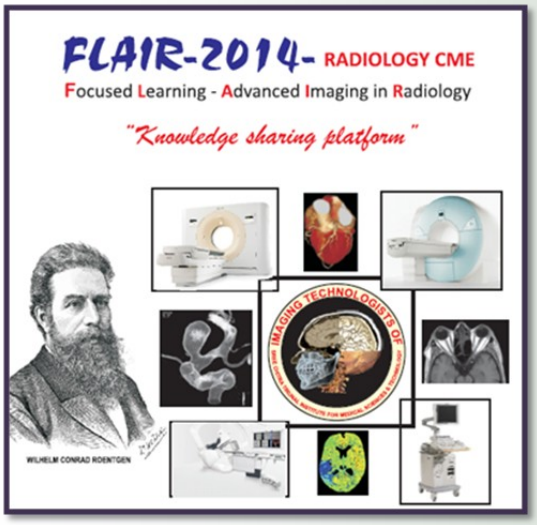
Events held..

Guelph, Canada who conducts several courses in laboratory Animal medicine also stated her good remarks and growing interests in this course after a short visit to the Division last year. This training programme is a unique one and helps in building confidence in the animal care-taking staff since they are actively involved in imparting the hands-on training along with the Technical Assistants and the Faculty. Er CV Muraleedharan, Associate Head, BMT Wing, at the recent concluding training session quoted - "***This is really a good way in team building and a model course for the entire campus".*** The Library is well equipped with latest addition of texts in the field of animal science, enabling students with their presentations on pre-assigned topics and a written test to make them self-evaluate their own progress, at the end of the 6 day course.

The inexpensive nature of the bi-annual course with lunch-tea-snacks included in the fees and the high quality of the training imparted makes it dearer to the youth against the green and cool ambience of the campus. Trivandrum has always been the most-suited destination to offer such a flashy course!!!!

(Contributed by Dr Annie John & Dr Harikrishnan, DLAS)

Upcoming events ....



Date: **8th March 2014**
Venue: **AMC Auditorium, SCTIMST**
Last date for registration: **1st March 2014**
For details contact:
flair.sctimst.ac.in@gmail.com
Mobile:
Mr Babunath (Organizing Sec)- 9995471230
Mr Joy (Program coordinator)- 9142020066

Science Fete 2014

The Annual Science Fete of SCTIMST will be held on Saturday, the 15th of March, 2014, as part of the Institute Day celebrations. There will be Oral Presentations under 4 categories, commencing at 9 AM. The best presentation in each of these categories would receive a certificate and cash prize of Rs. 5000/-.

Categories: **Clinical**
Public Health
PhD (Registered candidates)
Technical
Venue: **AMC Auditorium**, SCTIMST
Last date for abstract submission:
1st March 2014
One hard copy of abstract may be sent to:
Dr Shivakumar (DCMC, Hospital Wing)
or
Dr Anoop Kumar (Mol Medicine, BMT Wing)

For details contact: **shivak@sctimst.ac.in**

In focus: Intellectual Property Right..

Frequently Asked Question!

1. What is Intellectual Property?

The term Intellectual Property refers to the creations of human mind such as inventions, literary, artistic works and designs used in commerce.

It is loosely defined as the 'Product of Mind'. It is similar to the property which can be used by the owner alone and not lawfully by others without owner's permission.

2. **What is Intellectual Property Right (IPR)?**

IPR protects the interest of creators by giving them property rights over their creations and also protects the application of thoughts, ideas & information which are of commercial value.

3. **What are the different forms of IPR?**

The different forms of IPR are

- Patents
- Copyrights
- Trademarks
- Industrial Designs
- Geographical Indications
- Protection of New Plant Varieties
- Layout Design of Integrated Circuits
- Protection of Undisclosed Information (Trade Secrets)

4. What is a Patent?

Patent is a grant for an invention by the Government to the inventor in exchange of full disclosure of the invention to debar others to exploit the invention for commercial success for a limited period within the geographical boundaries of the Nation.

5. What are the conditions to be satisfied by an invention to be patentable?

Novelty (**Section 2(1)(j),13,29 to 34):** An invention will be considered novel if it does not form a part of the global state of the art. An invention will cease to be novel, if it has been disclosed in the public through any type of publications anywhere in the world before filing a patent application in respect of the invention.

Inventiveness (Non-obviousness) (Section 2(1)(j),2(1)(ja)): A patent application involves an inventive step if the proposed invention is not obvious to a person skilled in the art i.e., skilled in the subject matter of the patent application. Inventiveness cannot be decided on the material contained in unpublished patents. If there is an inventive step between the proposed patent and the prior art at that point of time, then an invention has taken place. A mere 'scintilla' of invention is sufficient to find a valid patent.

Usefulness (S.2 (1) (ac)): in relation to an invention, means that the invention is capable of being made or used in an industry.

6. General precautions to the applicant

Among persons having filed the same invention, first one is granted a patent. Inventors if publish their inventions in newspapers or scientific and technical journals, before applying for patents, even by the inventor himself, would (except under certain rare circumstances) constitute a bar for the subsequent patenting of it. The use of the invention in public, or the commercial use of the invention, prior to the date of filing patent application would be a fatal objection to the grant of a patent. It is advisable to apply for a patent as soon as the inventor's idea of the nature of the invention has taken a definite shape.

7. What are patentable inventions under the Indian Patents Act? (Section 3)

Any new product or process, originated from the inventive concept, and capable of being reproduced in an industry would be considered as patentable, **except**

- Invention against natural laws;
- Invention against public, humanity or creature;
- Discovery [theory, living or non livings substances];
- New use of known substance;
- Combinational product of known substances;
- Duplication or arrangement or rearrangement of known devices or substances;
- A method of agriculture and horticulture;
- A method of treatment of human beings or animals;
- Plants or animals or its any part;
- Mathematical or algorithms;
- Business Method;
- Computer programme or software;
- Literary, artistic, musical, dramatic, aesthetic, and cinematographic or television works;
- Performance of mental act or presentation of information;
- Topography of Integrated circuits;
- Traditional knowledge; and
- Invention related to atomic energy.

8. Who can apply for a patent? (Section 6)

Person who files a patent is called an applicant. An applicant can be any of these three categories: - either alone or jointly with any other person

- Person claiming to be the inventor
- Assignee of the inventor

- Legal representative of any deceased person who immediately before his death was entitled to make such an application

9. Who can draft patent specification?

Though the inventor himself can draft the application, it is desirable that a patent information specialist be hired to do this job. A look on the closely related patent applications already filed/ granted will render help to a great extent. He/she will also be well versed in physical requirements of each type of applications.

10. Is there any limit on number of pages or claims?

The fee of filing is for up to 30 pages and 10 claims. For every additional page and claim there is an extra charge.

11. When can one file patent application? (based on Section 9)

There are two possibilities:-

- At an initial stage of the work and work is likely to be finished within one year, so that no one else can come up with the same work – In such case, a "Provisional specification"- can be filed and one year time will be available to give the full details and at the same time get the priority from the date of filing of the provisional specification.
- After completing the work, disclose all information in order to get a patent- In such a case a "Complete specification" can be filed.

12. Where can an Indian file a patent application? (Section 2(1)(r), 2(b), 74)

There are four patent offices in India which are located in Chennai, Delhi, Mumbai and Calcutta. Each patent office is meant to represent each zone of India, Chennai for south, Delhi for north, Mumbai for west and all others in Calcutta office.

13. What are the criteria for naming inventors in an application for patent?

The naming of inventors is normally decided on the basis of the following criteria:

- All persons who contribute towards development of patentable features of an invention should be named inventor(s).
- All persons, who have made intellectual contribution in achieving the final results of the research work leading to a patent, should be named inventor(s).
- A person who has not contributed intellectually in the development of an invention is not entitled to be included as an inventor.
- A person who provides ideas needed to produce the 'germs of the invention' need not himself/ herself carry out the experiments, constructs the apparatus with his/ her own hands or make the drawings

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

himself/herself. The person may take the help of others. Such person who have helped in conducting the experiments, constructing apparatus or making the drawings or models without providing any intellectual inputs are not entitled to be named inventors.

- Quite often difficulties are experienced in deciding the names of inventors. To avoid such a situation, it is very essential that all scientists engaged in research should keep factual, clear and accurate recording of daily work done by them in the form of diary. The pages in the diary should be consecutively numbered and the entries made be signed both by the scientists and the concerned leader.

14. What does a patent specification contain? (Based on Section 10 and Rule 13)

A patent application has the following information:

- Bibliographic: It is in structure format. It contains the title of the invention, date of filing, country of filing, inventor's name etc.
- Background of the invention or State of the art: In this the inventor lists the state of the art available on the date of filing his invention. Here, the inventor lists the shortcomings/drawbacks found in the state of the art and define his problem.
- Description of the invention: In this the inventor describes his invention duly supported by a series of workable examples along with diagrams/charts, if needed. The invention has to be described in complete details, so that any person, who is skilled in the art, can work out the invention.
- Claims: In the last, the inventor has to bring out a series of claims establishing his rights over the state of the art. It is this portion, upon which the protection is granted and not on the description of the invention. This has to be carefully drafted

What are costs related to Indian Patent filing?

Process	Individual (Rs.)	Organisation (Rs.)
Provisional/Complete specification	1000	4000
Pages Exceeding 30	100	400
Claims Exceeding 10	200	800
Request for extension of time	300/month	1200/month
Request For Early Publication	2500	10000
Request for Examination	2500	10000
Express Request for Examination	3500	14000
RENEWAL FEES (per year)		
3rd to 6th Year	500	2000
6th to 10th Year	1500	6000
11th to 15th Year	3000	12000
16th to 20th Year	5000	20000

(International IPR to be continued in the next issue.....)

Prepared by: Intellectual Property Cell
Courtesy: http://www.ipindia.nic.in/

Did you know ???

DREAMS: mystery lingers!


Salvador Dali Dreams

When Kekule's benzene showed us science happening in dream, have you ever wondered what would be the science behind dreams? Not the inspirational dreams quoted by Dr Kalam but those that are full of symbolic messages that may not be clear to us on the surface. Dreaming is a normal brain activity. Dreams are successions of images, ideas, emotions, and sensations that occur subconsciously and involuntarily in the mind during certain stages of sleep. The scientific study of dreams is called oneirology. Dreams mainly occur in the rapid-eye movement (REM) stage of sleep, when brain activity is high and people are more likely to remember the dream if they are awakened during the REM phase. Dreams can last for a few seconds, or as long as 20 minutes. Scientists think that all mammals dream, but whether this is true of other animals, such as birds or reptiles, is uncertain.

Dreams, according to Freudian theories are based on the idea of repressed longing, the desires that we aren't able to express in a social setting. The well known activation-synthesis hypothesis of Allan Hobson and Robert McCarley states that dreams are simply the result of random electrical brain impulses that pulls imagery from traces of experience stored in the memory. They hypothesize that these images don't form the stories that we remember as our dreams. Instead, our waking minds, in trying to make sense of the imagery, create the stories without our even realizing it; simply because the brain wants to make sense of what it has experienced. Dreams can have varying natures, such as frightening nightmares, exciting, magical, melancholic, adventurous, or sexual. The events in dreams are generally outside the control of the dreamer, with the exception of lucid dreaming, where the dreamer is self-aware. Growing evidence suggests that healthy dreaming helps us process and heal emotions.

(Contributed by Ms Arathi R, PhD scholar, Sleep Disorders Research Lab)

Opinions & testimonials

"Chitra Dhwani" has been a happy and cheerful reminder of my precious links with Chitra. Every issue gave me welcome news about my old friends and colleagues, as well as past and present events, which I enjoyed thoroughly. Congratulations and warmest good wishes on the first anniversary of Chitra Dhwani".

Dr MS Valiathan, Founding Director, SCTIMST

"Chitra Dhwani has succeeded in projecting the positive image of the Institute. To do better, remember that graphic excellence is that which gives the reader the greatest number of information in the smallest space."

Dr K Radhakrishnan, Ex-Director, SCTIMST

Chitra Dhwani has served a great purpose to bring the faculty closer of both the wings and AMC. It has also provided interesting information time to time about the past with an excellent integration to our present state of activities. It has become a mirror of the voices of our faculty and staff. I am sure it will help our faculty and staff to integrate ourselves towards our noble mission of promoting medical devices technology. I certainly appreciate the dedicated efforts of Dr Kamalesh K Gulia and the editorial team in developing Chitra Dhwani to this level within a year. I wish them a continued success".

Dr Chandra P Sharma, Acting Head,
Senior Scientist G, BMT wing, SCTIMST

Chitra Dhwani is an excellent platform for highlighting the activities of our Institute and it helps as a communication medium to understand what each of the departments and divisions are working on".

Dr Thankappan KR, Prof & Head, AMCHSS

Let me record my appreciation in the way you have combined very serious scientific matters with the human side of the staff working in the various labs. It is interesting to note that there are many artists among the scientists and being one does not exclude the other quality. You have put to rest the common belief that scientists should not indulge in frivolous matters like writing poetry or putting a funny title to a very serious scientific photograph. In the process the right side of our brains have enjoyed immensely. Please continue pestering us to open up more interesting sides to our personality. Wishing you all the best in this venture!"

Dr Kavita Raja, Prof, Microbiology

Opinions and testimonials..

"Congratulations to the editorial team for good quality content, interesting quotes, beautiful pictures, wide audience reach, environmental friendliness (paperless), and cost effectiveness (no printing or postage costs). Suggestions for the future could include augmentation by videos/ slideshows and to make our Chitra Dhwani a Webzine"

Dr Rupa Sreedhar, Prof, Anesthesiology Dept

"Congrats on the occasion of Chitra Dhwani completing successfully a wonderful year. I would suggest two points for you to ponder as feedback. One is to give some space in Chitra Dhwani for cartoons, the lighter side of life. The other is a column to pen futuristic aspects, perspectives, views, dreams etc. of departments, wings and of the Institute in totality itself."

Vijayan, Senior Technical Officer, BMT wing

"Chitra Dhwani since its inception has proven to be a reflection of the creative ethos of our community. Dhwani has echoed our efforts across domains as well as held a foil to our history. The Editorial Board and roving journalists deserve special thanks, and we wish Dhwani a prosperous future as the creative conscience of our Chitra Community!!"

Francis B Fernandez, President, SCDS Forum

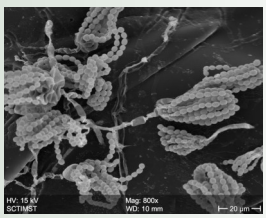
Photographic competition for Science and General pictures

Entries are invited for the pictures competition in science or general category.
The pictures should have been clicked by a person who is sending the entry.
Only one entry can be submitted per person
Picture can be coloured or black & white
Last date: May 15, 2014 (Submit at enewsletter@sctimst.ac.in)

Winners of the photographic competition in current issue will be announced in next issue

The artistic titles for the science images published in Vol1, Issue 4, 2013

A.



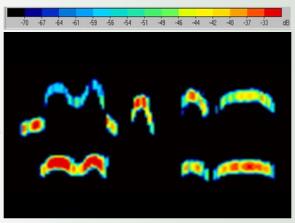
Beady bridges

Joanna Sara Valson

MPH, Batch 2013

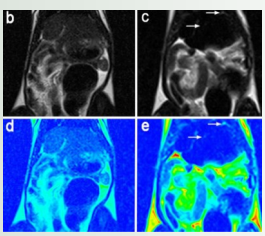
Winner

B.



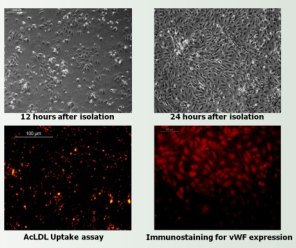
Shooting stars

C.



Luminous lakes

D.



Nightly nebula

"Hold fast to dreams, for if dreams die, life is a broken-winged bird that cannot fly".

Camera capturing life..

1 Content with life!

2 Hullo! Up there , are you OK!

3 What man encroaches, Nature reclaims!

All these pictures labeled 1-7 are clicked by our talented SCTIMSTians!

Sharing is JOY! 4

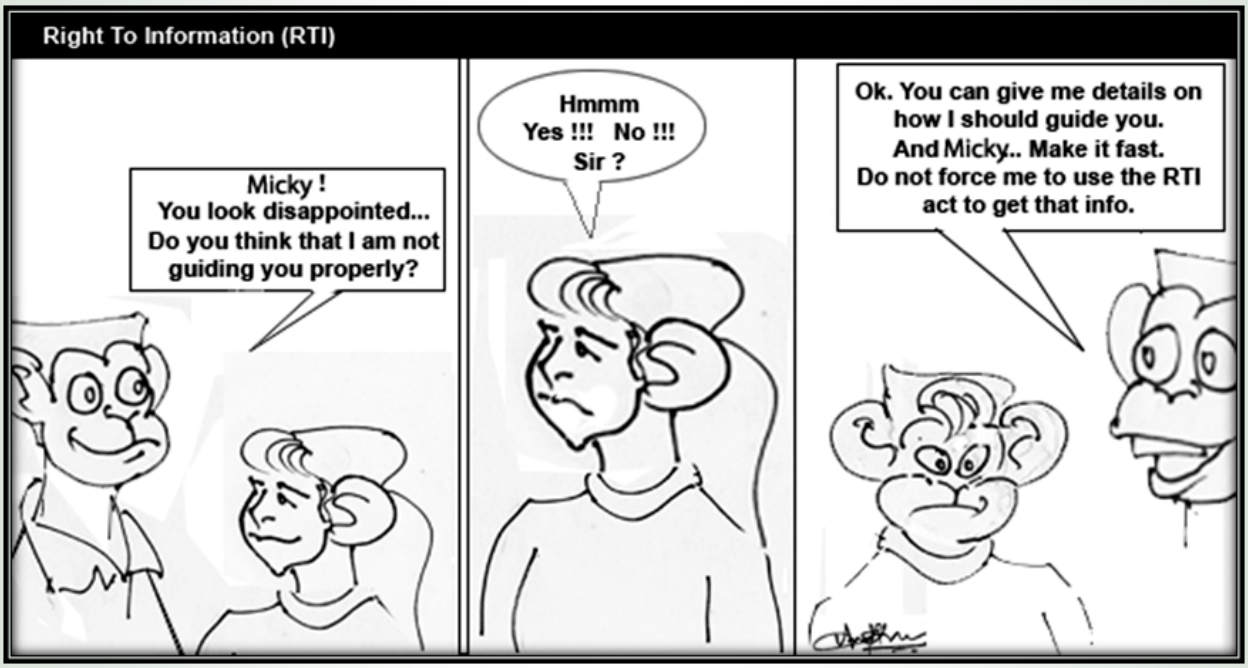
Fireball immersed in ocean! 5

The wait is long, my dream of you does not end! 6

Night view of Queen Mary, an Ocean liner! 7

Fun Page..

Note: None of the cartoon or its element presented in the e-zine are related to any person, incidence, lab or facility in the Institution. The cartoons are in true spirit of fun and amusement!



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

Christmas Angels on New Year party...

Poetic expressions..

സുദർശ സിസ്റ്റർക്ക് സാദരം

കൊട്ടിയം ഹോളീ ക്രോസാം
നഴ്സിങ്ങ് കലാലയ മുറികളിൽ
വിത്തു പാകിയൊരു സേവച്ചെടീ....
എൺപതിൻ ഫെബ്രുവരി എട്ടിലൊരു
മെട്ടായ് ചിത്രയുടെ ഭൂമിയിൽ വിടർന്നു വന്നു നീ
മുപ്പത്തിമൂന്നിന്റെ നിറവിൽ
പീലി വിടർത്തി നിൽക്കുന്ന നിൻ
സേവ ചക്രത്തിലേക്കൊരു തിരനോട്ടം
സാദരം നടത്തട്ടേ സിസ്റ്റർ സുദർശേ..

നാഡി വിജ്ഞാനത്തിലവതാളമായെത്തും
ഒരായിരം പേരുടെ നാഡിമിടിപ്പറിയും
ആദ്യമായ് വാർഡിലും പിന്നിലായ്
തലനാഡി നടുവിന്റ് തീവ്രവിജ്ഞാനത്തിലും
മേലധികാരിയായ് സേവനം തീർക്കുന്ന നീ.....
തലനാഡി നടുവിലൊരു ഹരമായിരുന്ന നീ...
കാലത്തൊരാറേ ആൻപതിനെത്തുമ്പോൾ
ശ്രദ്ധകളഖിലം വൃത്തിയിൽ പതിയും
ഓവറിന് നിൽക്കുമ്പോൾ ഏഴിനെത്തത്തവർ-
ക്കന്നത്തെ ദിവസം പോക്കുതന്നെ
മിഴിയണക്കാതെ രാവിൽ സേവകൾ
ചെയ്തോർക്ക്
മൂഡ് പോകുമൊരു ട്രിപ്പിൾ ല്യൂമനിൽ
രോഗിയുടെ സംതൃപ്തി മാത്രം ഉയരുമ്പോൾ
തട്ടിയുടയുന്ന നിരവധി ആത്മാഭിമാനങ്ങൾ
തീവ്രവിജ്ഞാനത്തിൽ ലീവിനായ് കെഞ്ചും
ജീവനക്കാർക്കാദ്യം നെഞ്ചിലൊരു കനലാണ്;
പിന്നൊരു കുളിരായ് കൈവരും ലീവുകൾ
പരിപൂർണ്ണതയ്ക്കായ് ഓടുന്ന സിസ്റ്റർക്ക്
എം.ഏസും, എൻ.എസും ഒന്നു പോലെ
അവാർഡുകളൊന്നായ് തേടിയെത്തുമ്പോളും
നിലപാട് ഭേദങ്ങളില്ലാതെ നിന്നവർ
സിസ്റ്ററിൻ പിരിയലിൽ നഷ്ടമാകുന്നു;
വീടുപോൽ നോക്കിയോരമ്മയെ നമ്മൾക്ക്
അടിയന്തിരാവസ്ഥ എത്രമേ ആവട്ടെ

മുൻ നിരയിൽ നിന്നവർ ഇടപെടൽ തീർത്തിടും
ഓറ്റിൽ നിന്നുയരുന്ന ഓരോരോ ബെല്ലിനും
ഓടി വന്നുത്തരം നൽകും സിസ്റ്റർ
വന്നിടും രോഗിയുടെ ഷിഫ്റ്റിലും കെയറിലും
സിസ്റ്റർ തൻ ടച്ചുകൾ ഇല്ലാതിരിക്കില്ല.
നിരവധി യന്ത്രങ്ങൾ ഇല്ലാതെ വന്നപ്പോൾ
യന്ത്രത്തിന്നായ് മുട്ടി മേൽത്തട്ട് കേന്ദ്രത്തിൽ
പിരിയൻ നിമിഷങ്ങളെത്തി നിൽക്കുമ്പോളീ
കേന്ദ്രങ്ങളിലെല്ലാ യന്ത്രങ്ങളും വന്നു.
അതിൽ പെടും ഫ്രിഡ്ജും അലക്കുയന്ത്രങ്ങളും
കൃത്രിമ ശ്വാസം കൊടുക്കുന്ന ടൊളിയും
തീരില്ല വരികളിൽ സേവന ഏടുകൾ
വറ്റിടും പേനയുടെ മഷികളെൻ സിസ്റ്റേ...
വിടുതലിൻ വേളയിൽ ഓർക്കുന്നു സാദരം
സേവകളൊന്നായ് അടിവര്യ സിസ്റ്റേ..
നേരുന്നൊരായിരം നന്മകൾ നിന്നുടെ
ഭാവിയുടെ ജീവിത യാത്രകളിൽ....

ഫൈസൽ പാലത്ത്
സ്റ്റാഫ് നഴ്സ്
ന്യൂറോ സർജറി ഐ.സി.യു.

For Sister Sudarsha, with respect

*Poem is dedicated to **Sister Sudarsha** of Neurology Department on the occasion of her retirement. Poet describes the work nature of the sister, right from the day she joined the institute and also appreciates the commitment of sister towards her duty and her compassion to patients. He describes it as "Sister's Touch". He also acknowledges the help she had done. At last, poet wishes luck for her future and for him words are not enough.....to describe her service!*

Poet: Faisal Paalath, Staff Nurse, Neurosurgery ICU

"Institute swan captured in amazing postures"

Fun Page..

The Almighty...

In the vastness of the galaxies
In the splendid glory of the space
In the glorious expanse of the sky
His glory shines forth...

In the beauty of a flower
In the spin of a butterfly
In the music of a bee hum
His majesty shows forth...

In the technology of mankind
In the symphony of musicians
In the harmony of the seasons
His wisdom lingers on...

In the flight of a bird
In the plight of a man
In the sight of a forlorn child
His faithfulness follows on...

In the intricate design of humans
In the minute proportion of hormones
In the accurate mixing of the enzymes
His knowledge springs forth...

In the sigh of a breath
In the cry of a heart
In the groan of a soul
His understanding envelops all...

Joanna Sara Valson

(Joanna Sara Valson is 2nd year MPH student at AMCHSS, SCTIMST)

Nanotube song

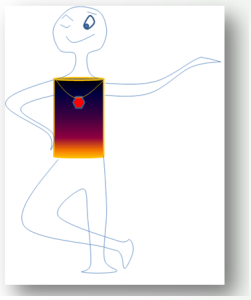
I'm the trendy, the style and fashion!
I 'm the small, but everywhere!
I was here, you didn't find me!
Now I am morphing and getting viral!

I can get along with you all!
Polymers, ceramics, and metals!
You can marry me as a composite
I'm very friendly, as we both mutually gain.

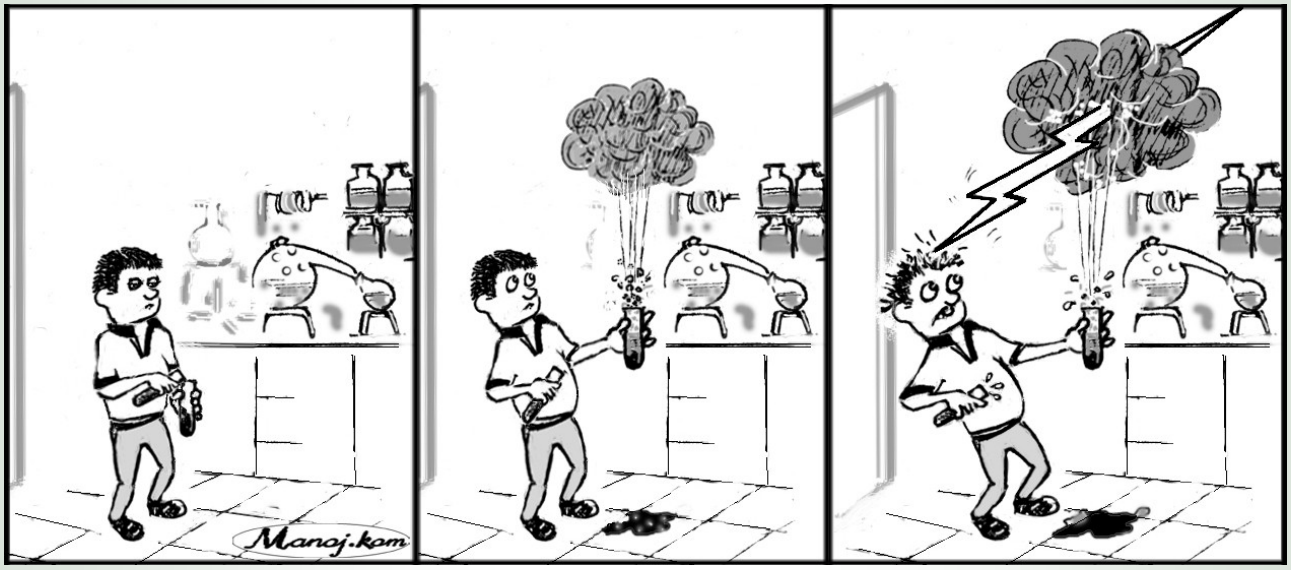
Hey biomaterials,
I'm a tube, prune me!
Do you have knives, similar in order to me?
You may cut me as a nice tailor.[1]
If you prune me, I'm less toxic.
Oh no! I know little!

I hope you may stitch nice....
Meeting your stylish needs.
Now I need a space in your wardrobe.
Please love the black, since I am black.

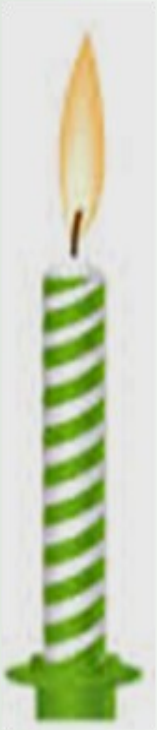
The nanotube



Created by Kaladhar Kamalahasan (Chitra High Value fellow, Surface Technology lab, BMT wing, SCTIMST). To make zero dimension Nanotube is one of his area of interest in research.



(Contributed by Dr Manoj K , Bioceramic Lab, who has been a professional cartoonist, some 15 years back)



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Special Acknowledgements: Liji Kumar G and Vasanthi S (Medical Illustration Unit **)**
To one and all for their valuable Contributions

E-magazine by Research and Publication Cell, SCTIMST, Trivandrum, Kerala, India

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*)