



AIMST E-BULLETIN

Issue II

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Editorial Desk

SUCCESS
isn't just
about what you
accomplish
in your life
it's about what
you inspire
others to do

It gives me immense pleasure in communicating this moral to our readers.

Once upon a time, a daughter complained to her father that her life was miserable and she didn't know how to make it through. She was tired of fighting and struggling to face her problems most of the time. It seemed, just as one problem was solved, another popped up. Her father, a chef by profession, took her to the kitchen and filled three pots with water and placed them on a high flame.



Once the three pots began to boil, he placed few carrots in one pot, eggs in the second pot and ground coffee beans in the third. He then let them to continue boiling, without saying a word to his daughter. The daughter, moaned and impatiently waited, wondering what he was doing. After twenty minutes, he turned off the burners. He took the carrots out of the first pot, eggs out of the second and placed them in separate bowls and then ladled the coffee out into a cup.

Turning to his daughter, he asked, 'What do you see?' She hastily replied, 'Carrots, eggs and coffee.' 'Look closer and feel the carrot', he said. She did, and noted that they were soft. He then asked her to take an egg and break it. After stripping off the shell, she observed the egg was boiled and hard. Finally, he asked her to sip the cup of coffee. Its rich aroma brought a smile to her face.

'Father, what does this mean?' she asked.

He then explained that the carrots, the eggs and the coffee beans, all faced the same adversity (the boiling water). However, each one reacted differently. The carrots went in strong, hard and unrelenting, but became soft and weak. The eggs were fragile, with the thin outer shell protecting their interior until these were put in boiling water. Then, the inside of the eggs became hard. However, the ground coffee beans were unique. After they were exposed to the boiling water, they changed the water and created something new.

'When adversity knocks on your door, how do you respond? Are you a carrot, an egg, or a coffee bean?' 'Which one of these would you like to be?' he asked his daughter.

Moral: In everyone's life, many things happen around us, happen to us, but the only thing that really matters is, how we react to it and what we make out of it. Life is all about learning, adopting and converting all the problems into something positive.

Mr. Abdul Nazer Ali, Editor-in-Chief, AIMST E-Bulletin.

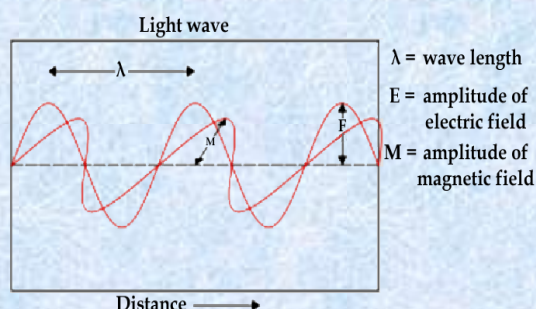
Cover Story

'Light for Life'

The International Year of Light is a global initiative that highlights the importance of light and optical technologies in our daily lives, the future, and development of society. It is a unique opportunity to inspire, educate and connect mankind on a global scale. On 20th December 2013, The United Nations (UN) General Assembly (68th session), proclaimed 2015 as the 'International Year of Light and Light-based Technologies' (IYL 2015).¹

This International Year has been the initiative for a large consortium of scientific bodies together with UNESCO, focusing on the topic of light sciences and their applications.¹ The United Nations has recognized the importance of raising global awareness about how light-based technologies promote sustainable development and provide solutions to global challenges in energy, education, agriculture and healthcare.²

'Light' refers to the breadth of electromagnetic spectrum, which includes visible light and light with wavelengths that we cannot see, such as: radio wave, microwave, infrared, ultraviolet, X-ray and gamma rays. These different types of light are used in everyday life. Likewise, the right kind of light and the right equipment can help us visualize things with much finer detail than that a human eye could possibly make out. In theory nothing can travel faster than light.³

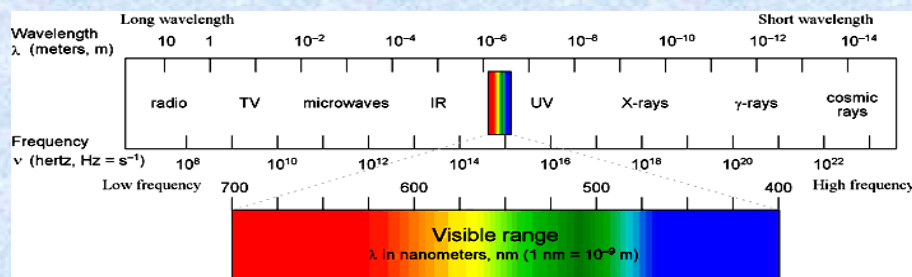


Cover Story

Prehistoric humans did not know the importance of light, but still were making use of electromagnetic radiation when they lit and warmed their caves with light from fire. Though warmth was more essential to human survival than artificial light, in fact, both emerged at about the same time.

The history of lighting is generally divided into four periods, each of which overlap and together illustrate the slow pace of change in illumination technology. First was the 'primitive period' that encompassed torches and lamps. Next was the 'classical stage' with relatively widespread adoption of the candle and light using vegetable oil. Third was the 'medieval stage' which saw the development of metal lamps. Last came the 'modern or invention stage', which began with the creation of the glass lantern chimney by Leonardo da Vinci in 1490 and culminated with Thomas Edison's first practical incandescent bulb in 1879, and continues to date.⁴

Light can be compared to a 'super microscope', by providing intensely bright forms of X-ray, infrared and ultraviolet light, which enables scientific research on samples to their tiniest detail. Each range of light is suited to a particular function. To 'see' atoms, we need to use a form of light that has a much shorter wavelength than visible light. As a general rule, short-wavelength (hard) X-rays are most useful for probing atomic structures. Long-wavelength (soft) X-rays and ultraviolet light are good choices for studying chemical reactions. Infrared is ideally suited to studying atomic vibrations in molecules and solids, and at its very long wavelength end (terahertz waves), it is also useful for certain types of electronic structure experiments.



The identification of elements in samples is in the province of X-rays. Microwave technology is extensively used for point-to-point telecommunications, spacecraft communication, much of the world's data, TV and telephone communications through ground stations and communication satellites. Microwaves are also employed in microwave ovens and in radar technology. Gamma radiation is often used to kill living organisms (a process called irradiation). In the procedure called 'gamma-knife surgery', multiple concentrated beams of gamma rays are directed towards cancerous cells. Gamma rays are also used for diagnostic purposes in nuclear medicine for imaging techniques. Free-electron lasers provide a complimentary source of light, which is produced differently. Laser rays have many medical and surgical applications in dermatology, ophthalmology, embryology, etc.⁵

Using these intense beams of light, scientists are able to carry out a variety of experimental techniques in a wide range of disciplines like chemistry, energy, engineering, medicine and many more. Light plays a vital role in our daily lives and is an imperative cross-cutting discipline of science in the 21st century. It has revolutionized medicine, opened up international communication via the internet, continues to be a central link to cultural, economic and political aspects of the global society.

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Contributed by: Dr. Sridevi Chigurupati, AIMST University, Malaysia.



Journey of Faculty of Pharmacy at AIMST University

The Faculty of Pharmacy began its journey from the interim campus of Asian Institute of Medicine, Science and Technology at Amanjaya, Sungai Petani, Kedah in 2004. The faculty was started with the appointment of two staff assigned to prepare B. Pharm (Hons) curriculum and LAN document for LAN/Pharmacy Board of Malaysia (PBM) approval. Subsequently, the School of Pharmacy obtained approval from Kementerian Pendidikan Tinggi (KPT) in July, 2005. Few more staff was appointed in 2005 for the school which offered the programme with eight semesters, two special semesters and three training sessions. Dr. Sureshwar Pandey was appointed as Acting Dean. The programme was started with the first intake of 39 students in December 2005 and staff strength was subsequently raised as per the needs. The school had the first monitoring visit by PBM in May 2006. Thereafter, the school acquired the infrastructure in terms of equipment and well-designed laboratories. The school was shifted to the new green ultra-modern campus in Semeling (April, 2007). In July, 2007, Diploma in Pharmacy programme was started. The second monitoring visit by PBM was held in 2007. Prof. S.A. Dhanaraj was appointed as the Acting Dean in 2008 and promoted to Dean in July, 2009. The first full accreditation visit by PBM/MQA was held in January, 2009. The school attained faculty status in the same year and few more staff joined the faculty including two locally registered pharmacists. The progress of faculty is narrated in the chronological order as follows:

- 2007 - MOU signed with four hospitals for clerkship and training
- 2008 - Faculty student society (PHARMSA) was constituted
- 2009 - First full accreditation visit of PBM
- 2009 - Full accreditation awarded to faculty for 3 years (2010-2013)
- 2009 - Conferment of degree to first batch students
- 2010 - National Gathering of Pharmacy Students (NoGAPS) conducted by PHARMSA
- 2012 - Faculty student emerged as Champion in National Pharmacy Quiz
- 2012 - National Pharmacy Quiz was organized by Faculty of Pharmacy, AIMST University
- 2013 - MOU signed with JSS University, Mysore, India
- 2013 - Faculty was awarded with ISO 9001:2008 certification and IQNet certificate for Quality Management System
- 2013 - Obtained approval to conduct Master of Pharmacy (Clinical Pharmacy)
- 2013 - Prof. Mohammed Baidi Bahari was appointed as DVC, Student Affairs
- 2014 - Obtained approval to conduct Master of Science (Pharmacy) by Research and Ph.D. in Pharmacy
- 2014 - Prof. S.A. Dhanaraj was appointed as DVC, Research and Innovation
- 2014 - MOU with NTTT University to offer franchise programme
- 2014 - Prof. Mohammed Baidi Bahari was appointed as the Faculty Dean
- 2015 - National Gathering of Pharmacy Students (NoGAPS) was conducted for the second time by PHARMSA

Contributed by: Dr. Kaveti Balaji & Dr. K. M. Sundram, AIMST University, Malaysia.



(To be continued: the journey of another School / Faculty in next issue)

Letters to Editor

'Healthy Mouth-Healthy Heart'

Gum disease affects majority of population, mostly adults. The most common disease of gum is gingivitis, which if not treated, can advance to the next stage periodontitis (pyorrhea). The signs that one may have gum disease include: Red, painful or swollen gums; bleeding gums while brushing or flossing; gums getting loose or away from teeth; chronic bad breath or a bad taste in mouth; loose teeth; gaps developing between the teeth.

Studies have shown that there is a connection between heart disease and oral health. People with gum (periodontal) disease are more likely to develop heart disease as compared to those with healthy gums. A good oral health is suggestive of good overall health. A compromised oral health can provide warning signs for other diseases or conditions, including heart disease.

Gum disease and heart diseases have common risk factors including diabetes, poor nutrition and use of tobacco. According to the Academy of General Dentistry (AGD), people having chronic gum disease are at higher risk of developing a cardiac risk such as heart attack. Dental plaque is a biofilm formed on teeth surfaces having bacterial colonies, sometimes even below the gum level. These bacteria are responsible for the inflammation of gums. If dislodged, they can enter the bloodstream, attach to blood vessels and lead to clot formation, hence increasing the risk of a heart attack.

On the other hand, it has been proven that systemic diseases including heart disease have oral symptoms. Dentists can help patients who have a history of heart disease by examining them for any signs of oral pain, infection or inflammation. According to the AGD, proper diagnosis and treatment of tooth and gum infections in some of these patients have led to improved overall health. The patient should inform his/her dentist about any heart disease or related medication and should carefully follow physician's and dentist's instructions about health care, and use of prescription medications. Regular dental check up and cleaning is necessary to keep mouth free from plaque and bacteria and detect early signs of gum disease. One can play a major role in preventing gum disease every day by regular brushing and flossing.

Contributed by: Dr. Rahul Rathi, AIMST University, Malaysia.

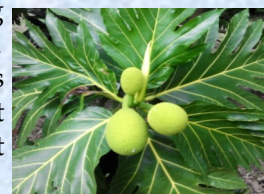


'Breadfruit (*Artocarpus altilis*): An Intangible Heritage Plant to Malaysia'

Artocarpus altilis (family: Moraceae) is commonly referred to as breadfruit as the texture of the moderately cooked ripe fruit flavours like potato or similar to freshly baked bread.¹ Breadfruit has been an important staple food. It is assumed to have originated in New Guinea and the Indo-Malay region and quite popular in the Caribbean region. Breadfruit has potential for being the sustainable food for nutrition security and for its medicinal value in the tropics, but it is under-utilized and has limited commercial production.

Around the world, among researchers it is considered as super food capable of ending world hunger. It has a great potential to be sold as nutraceutical for food and nutrition. In Malaysia, breadfruit is called buah sukun and its popular Malaysian recipe is breadfruit halva. Other recipes include boiled breadfruit in coconut milk, breadfruit curry, sukun chips, sukun fritters (cekodok sukun), breadfruit masala, breadfruit cheese soup and breadfruit fish cakes.²

Breadfruit is gluten-free, has high energy from carbohydrates, is a source of protein and dietary fibre, and has high potassium content. It also has a lower glycaemic index than widely consumed imported cereals. This nutritional content makes it attractive in the fight against diseases like diabetes and hypertension. Basically, *Artocarpus* species consists of phenolic compounds which include flavonoids, stilbenoids, arylbenzofurans and Jacalin, a lectin. Breadfruit is also reported to contain 40 volatile compounds and capric, undecanoic and lauric acids that act as insect repellents. Nutritional compositions of the seeds have protein, carbohydrate, fat, calcium, phosphorus, iron, niacin, thiamine and vitamin C. Breadfruit is reported for various ethnobotanical, traditional and pharmacological uses.³



Shown picture was taken by author in Breadfruit plantation area of University of West Indies St. Augustine campus, Trinidad & Tobago during his visit on 6-10 July 2015.

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Contributed by: Dr. Mukesh S. Sikarwar, AIMST University, Malaysia.



Health Tips

'Blessings in disguise – Why does our body do that?' -Part II

The continuation about curiosity for certain body reactions explained by Dr. Eric Plasker, DC, Author of 'The 100 Year Lifestyle' who provided the real scoop. Read to discover the common reasons for 14 peculiar bodily functions (Part II).

6. Sneezes

When your body wants to expel an irritant from the nasal cavity, you happen to sneeze. Allergies, pollens or pet dander are usually to blame. If one has cold, the body secretes mucus which traps the virus, and sneezing helps force the virus out of the body. An OTC allergy or cold medicine helps suppress allergic reactions and mucus production thus preventing sneezing.



7. Coughs

A cough is another mechanism to get rid of irritants. There are special cells along the air passage that recognize the irritants and force them out. Common cold, pneumonia and sinus, all increase the mucus production which triggers coughing. Smoking and asthma also tend to irritate the cells. To help reduce chronic coughing, exercise regularly and practice good posture to keep air passage open.



8. Charley Horses

These sudden, super-painful muscle spasms can be due to dehydration or electrolyte imbalance – often from strenuous exercise. After a demanding workout or extra-long run, sip a sports drink to keep your system running smoothly. If you experience this type of cramp, gently walk around to relieve the pain.



9. Shivers

Shivering is due to full body muscle twitching. When the body temperature drops too low, the body shakes all over in an attempt to generate heat. The only way to cure these kind of shivers is to get your temperature back to 98.6° F.



10. Tinnitus (Ear Ringing)

Tinnitus or ear ringing can happen for two reasons either infection or accumulation of fluid in the middle ear can cause a constant buzz or damage to the microscopic ends of hearing nerves when exposed to loud noises. To prevent permanent damage, wear earplugs at concerts and sporting events or in any situation/event where the decibel levels are high.



11. Borborygmi (Stomach Rumbles)

Borborygmi or rumbling noise is heard due to contraction of stomach and intestine muscles when food, liquid and gas move through the digestive tract. Everyone's stomach makes noise during digestion, but if one has extra-loud noise, a teaspoon of olive oil or a cup of herbal tea may help.



12. Pins and Needles (Limbs Falling Asleep)

When there is consistent pressure on part of a limb – like when you sit on your feet or rest your head on an arm – the pressure squeezes your nerve pathways and scrambles messages sent to the brain. The mixed messages make you lose feeling in the squished body part because your brain has trouble telling it what to do. To prevent a case of pins and needles, avoid sitting or lying in positions that compress your nerves.



13. Seeing Stars

After a blow to the head or stricken by a migraine, if you stand too quickly, there is a good chance you'll see stars as blood surges to different parts of the body. Generally, these tiny flashes of light will fade in a few seconds. If you see stars for more than a few minutes, you could have a tear or tiny clot in your retina and you must see physician immediately.



14. Ear Popping

The Eustachian tube in the ear is responsible for maintaining equal pressure on both sides of the eardrum. When you experience a rapid change in altitude – during a take-off in an airplane or when riding an elevator in an extra tall building, the Eustachian tube opens to release pressure, and you hear a pop. To force the tube open, squeeze your nostrils closed while exhaling forcefully through your nose.



Source of Information: Dr. Eric Plasker, DC, Author of 'The 100 Year Lifestyle'.

Contributed by: Mr. Nazer Ali, AIMST University, Malaysia.

Health Issues

'Assessing Cognitive Behaviour – The avoided physician encounter'

Primary Care physicians are the first to address a patient's complaints or a family's concerns about memory loss or possible dementia in a patient. There are quick guides which provide information about assessing cognitive impairment in older adults. These guidelines can help identify emerging cognitive deficits and possible causes. They may then be followed up with treatment for what may be reversible health conditions. If Alzheimer's disease or another dementia is found, it can help patients and their caregivers prepare for further deterioration or changes in personality.¹

Cognitive impairment in older adults has a variety of possible causes, including medication side effects, metabolic and/or endocrine derangements, delirium due to intercurrent illness, depression and dementia, the Alzheimer's dementia being the most common. Some causes like medication side effects and depression, can be reversed with treatment. Others, such as Alzheimer's disease, cannot be reversed, but symptoms can be treated for a period of time and families can be prepared for predictable changes. Many people who are developing or have dementia do not receive a diagnosis. One study showed that physicians were unaware of cognitive impairment in more than 40% of their cognitively impaired patients. Another study found that more than half of patients with dementia had not received a clinical cognitive evaluation by a physician. Failure to evaluate memory or cognitive complaints is likely to hinder treatment of underlying disease and comorbid conditions, and may present safety issues for the patient and others.

In most cognitively impaired patients, the cognitive problem will worsen over time. If screening is negative, worries can be eliminated at least at that point of time. If screening is positive and further evaluation is warranted, the patient and physician can take the next step of identifying the cause (for example, medication side effects, metabolic and/or endocrine imbalance, delirium, depression, Alzheimer's disease etc.). This may result in treating the underlying disease or health condition and manage the comorbid conditions more effectively, thereby avoiding safety issues that can arise. This can also allow the patient to plan long-term care, making it possible for the patient to get a caregiver who can help manage with medical, legal and financial concerns. This can ensure the caregiver receives appropriate information and referrals whenever necessary. Some patients (or families) are reluctant to mention such complaints because they fear a diagnosis of dementia and the effects on their social image. In these cases, a primary care provider can explain the benefits of finding out what may be causing the patient's health concerns.² Pharmacological treatment options for memory loss and other cognitive symptoms are limited, and none can stop or reverse the course of the disease. However, assessing cognitive impairment and identifying its cause, particularly at an early stage, offers several benefits.³

Information from a person who has frequent contact with the patient, such as a spouse or other care providers, is the best way to a more complete assessment of cognitive impairment. A primary care provider may conduct an evaluation or refer to a specialist such as a geriatrician, neurologist, geriatric psychiatrist, or neuropsychologist.⁴ Interviews to assess memory, behaviour, mood and functional status (especially complex actions such as driving and managing money) are best conducted with the patient alone, so that family members or companions cannot prompt the patient. Information can also be obtained through the patient's behaviour as he walks into the doctor's office and interacts with the clinic personnel. Patients who are only mildly impaired may be covering up their cognitive deficits and reluctant to address the problem. Family members or close companions are good sources of information. Inviting them to speak privately may allow for more candid discussion.⁵ An alternative would be to invite the family member or close companion to be in the examining room during the patient's interview and contribute additional information after the patient has spoken. Other risk factors that could indicate the need for cognitive impairment screening include: low education, history of type-2 diabetes, stroke, depression, and trouble managing money or medications.

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Contributed by: Dr. Sawri Rajan Rajagopal, AIMST University, Malaysia.





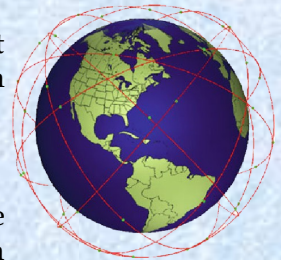
'Satellite Communication for 5th Generation (5G) of Global System for Mobile'

Concept and Motivation

Satellite communications have long been known and are used for transmitting various signals over an extended distance. Since its inception, satellite communication has been growing rapidly as they gained experience, improved equipment simplifications, development of better methods in signal transmission and their transition from individual satellite lines to local and global communication systems. The satellite communication is explained by several advantages. These include in particular, high bandwidth, unlimited space overlapping, high quality and reliability of the communication channels. Satellite communications can be divided into two types, working through satellites in geostationary and non-geostationary orbits. There are fundamental issues about satellite communications for mobile systems due to the distance between mobile station and satellite transponder and for this reason the following essential issues arise.

- The peculiarity of satellites in geostationary orbit is a significant time delay about 240 ms, caused by necessity to cover twice the distance of 36,000 Km from an earth transmitter to a satellite receiver and vice versa.
- These distance causes signal attenuation and spreads the signals.
- The power requirements for propagation of signals.

Non-geostationary satellites are primarily used for defence, aerospace and maritime communication purposes. Moving along a predetermined orbit relative to the earth surface, they can communicate to large number of earth stations on the surface of the earth.



Main Objectives

To develop satellite communication systems for the mobile satellite channels, initially, a model of communication channel between the mobile and satellite has to be identified. The systems may be integrated with the future Global System for Mobile (GSM) communication 5th Generation (5G) via mobile satellite transmission system. Main objectives include:

- the system could be further improved to reduce the interferences, multipath effects and increase the speed of movements of mobile station and satellite transponder by improving the Doppler effects of satellite channels.
- developing the systems and techniques, where implementing in the satellite communications of 5G for the coverage of the entire earth surface using multiple satellites.

The types of signal in a typical channel for improvement purposes are audio, video and data. Low Earth Orbit (LEO) will be considered for the distance of wireless transmission medium between the location of satellite and the mobile station. Electromagnetic wave propagation methods were applied at the transmitter and receiver of satellites onboard, earth stations and mobile stations. Wide band spread spectrum signals are to be generated using Pseudo Noise (PN) sequence.¹

Progress Beyond State of the Art

Signal processing involves in the analysis and processing of signals produced from linear systems and can be in the time, frequency and spatial temporal domains. Spectral analysis method finds application in many diverse fields. In speech analysis, spectral models of voice signals are useful in better understanding the speech production process. There are two broad approaches to spectral analysis. One of these derives its basic idea directly from definition which is essentially what the classical or nonparametric methods of spectral analysis do. The second approach called, the parametric approach is to postulate a model for the data, parameterise the spectrum and to reduce the spectral estimation in the assumed model. The nonparametric methods of spectral determination rely entirely on the definitions of Power Spectral Density (PSD) to provide the result of spectral analysis.² Spectral determination techniques can be employed to resolve the linear signals to track the desired signals which is received in the form of electromagnetic radiation of periodic PN spread spectrum wave. The new model of spectral determination technique for the linearly independent system has to be identified for implementation on 5G in the future satellite communications.

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Contributed by: *Mr. Ravandran Muttiah, AIMST University, Malaysia.*



Research Updates

'Impact of Total Contact Plaster Boot via off loading Practice in Trophic Ulcers (Malum perforans) of the feet'

Trophic Ulcer, a long-lasting, usually painless ulcer that penetrates deep into or through the skin, usually on the sole of the foot have emerged as one of the major complications following diabetes mellitus and Hansen's disease. It has become an increasingly significant public health concern in both the developed and developing world. These complications arising from peripheral vasoconstriction, Ischemia, neuropathy, etc. Which subsequently leads to foot ulcers and infections. Ulceration of insensitive foot continues to cause great morbidity in patient with diabetes and Hansen's disease.¹

Recent data from Centers for Disease Control and Prevention approximates 25.8 million, roughly 8.3% of the United States population have diabetes. Diabetes is a major life style disorder, the prevalence of which is increasing globally, mainly among Asian countries like India, Pakistan, Bangladesh, China and Malaysia who contribute to more than 60% of the world's diabetic population.² According to WHO reports from 115 countries and territories, the global registered prevalence of Hansen's disease (leprosy) at the end of the first quarter of 2013 stood at 189,018 cases. The figures show that more number of cases mainly in Asia and Africa among the marginalized communities is mostly at risk from Hansen's disease.^{2,5}



Plantar ulcers are the most common complication in both diabetic and Hansen's disease. The care for the ulcers of the plantar aspects requires multi disciplinary approach which will improve subject's functional capacity and quality of life.³

Various treatment techniques such as foot assessment, intensive education, therapeutic shoes, padded stockings, infection control, debridement, pressure mitigation and various physical therapy modalities like ultrasound therapy, laser therapy, cryotherapy and exercises have been employed in the management of neuropathic ulcers.⁴ Though various treatments are available for the management of plantar ulcers, total contact plaster boot promoted healing proved to be an effective method. After application of plaster boot, patients were discharged and advised to review after 15 days. In other treatment techniques, the patient should go daily to outpatient department to undergo their routine procedures. So, many patients will be comfortable in plaster boot application when compared to other treatment techniques.

The total contact plaster boot enhances immobilization of the foot in order to reduce vertical force during gait thus allowing the plantar ulcer or pre ulcerous lesion to heal; additionally they promote healing by controlling lower leg and foot oedema as well as provide protection from trauma. The treatment method also allows the patient to continue employment, which supports them financially.



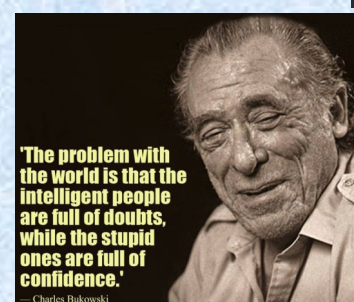
The fact designates that the application of Total Contact Plaster Boot is valuable in the Trophic Ulcers of the feet due to both Diabetes mellitus and Hansen's disease.

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Contributed by: Mr. A. N. Sundaresan, AIMST University, Malaysia.





'Let's educate Women and reduce NTDs Risk in children'

Pregnant women are at risk of folate deficiency because pregnancy significantly increases folate requirement, especially during periods of rapid fetal growth (first and second trimester). Folate deficiency during pregnancy can result in Neural Tube Defects (NTDs).

According to World Health Organization (WHO), the use of folic acid before or during pregnancy is associated with reduced risk of the foetus developing NTDs.¹ Neural tube defects are severe and common congenital malformations developed during early pregnancy affect the central nervous system.²

Neonates who have NTDs may suffer from long-term complications throughout their lifespan. As patients grow older, many physical disabilities such as obesity, bedsores, cardiovascular disease and spinal cord injury will become more challenging problems.³

The reasons why pregnant or expectant mothers must take 400mcg of folic acid everyday is because:
a) NTDs result from failure of normal neural tube closure in the first few weeks of pregnancy, often before a woman finds out she's pregnant.

b) half of all pregnancies are unplanned, by the time a woman realizes she's pregnant, it might be too late to prevent these birth defects.

In our recent cross sectional study, data proved that there is often limited knowledge and understanding on consumption of folic acid among pregnant women, especially among those from poor socioeconomic backgrounds.

We distributed pamphlets with the hope of educating them to improve their knowledge and understanding about the recommended folic acid intake among women, especially those with lower educational levels. Recommended nutrition intake of folic acid in Malaysia are: for non-pregnant women (400 µg/day); for pregnant women (600 µg/day); for lactating mothers (500 µg/day).

Women in the reproductive age group should be advised about the benefits of folic acid in addition to a multivitamin supplement during wellness visits.

Pap testing, birth control renewal and yearly examination should be advised, especially if pregnancy is contemplated.

Let's educate women and save the neonates!!

AIMST UNIVERSITY
Clinical Pharmacy and Practical Pharmacy Unit

BENEFITS OF FOLIC ACID IN PREGNANCY

- Reduce risk of neural tube defect in new born
- Cut the chance of premature birth
- Prevent low birth weight
- Decrease miscarriage

References

World Health Organization

MINISTRY OF HEALTH MALAYSIA

What Is Folic Acid?

Also called folate, is a B vitamin

B₉ Vitamin

When Should I Start Taking Folic Acid?

- At least a month before you become pregnant
- Every day while you are pregnant.

How Much Folic Acid Should I Take?

400 mcg everyday

All women need folic acid. So, Go Folic!

Folic Acid Rich Food

(Vegetables)

- Spinach
- Cabbage
- Broccoli
- Beetroot

(Fruits)

- Oranges
- Banana

(Other Sources)

- Egg yolk
- Milk
- Cheese
- Yoghurt

Prepared by:
Ms. Dayana Nicholas,
Low Huey Thing and Lee Win Win

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3. Rasmussen SA, Chu SY, Kim SY, Schmid CH, Lau J. Maternal obesity and risk of neural tube defects: a metaanalysis. Am J Obstet Gynecol. 2008; 198:611-19.

Contributed by: Ms. Dayana Nicholas, Ms. Low Huey Thing and Ms. Lee Win Win, AIMST University, Malaysia.



New Drugs Updates

‘An overview of Drugs Approved recently by the U.S. FDA’

The U.S. Food and Drug Administration (FDA) on December 22, 2015 approved lesinurad to treat hyperuricemia associated with gout.¹ It helps to excrete uric acid by inhibiting the function of transporter proteins involved in renal uric acid reabsorption.¹ The common adverse reactions noted in clinical trials include headache, influenza, increased blood creatinine and gastroesophageal reflux disease.¹

The U.S. FDA on December 16, 2015 approved insulin glargine injection (Basaglar), a long-acting human insulin analog, for the improvement of glycaemic control in type-1 diabetic adult and paediatric patients, and in adults with type-2 diabetes mellitus.² Dosing of Basaglar is needed to be individualized on patient based necessity. It is administered subcutaneously once daily.² The common adverse reactions of Basaglar noted in clinical trials include hypoglycaemia, allergic reactions, injection site reactions, pitting at the injection site (lipodystrophy), itching, rash, oedema and weight gain.²

The U.S. FDA on November 4, 2015 approved mepolizumab (a humanized interleukin-5 antagonist monoclonal antibody) for using with other asthma medicines for the maintenance treatment of asthma in patients aged 12 years and older.³ It is approved for those patients who have a history of severe asthma attacks in spite of receiving their current asthma medicines. It is administered once every four weeks by subcutaneous injection at the upper arm, thigh or abdomen.³ Mepolizumab reduces severe asthma attacks by reducing the levels of blood eosinophils.³ The common side effects include headache, reactions at injection site (pain, redness, swelling, itching, or a burning feeling at the injection site), back pain, and fatigue. Hypersensitivity reactions can also occur within hours or days. In addition, Herpes zoster infections have occurred in patients receiving mepolizumab.³

The U.S. FDA on October 21, 2015 approved patiomer (oral suspension) to treat hyperkalemia.⁴ The kidney plays a key role in removing potassium, from the blood in order to maintain a balance of potassium in the body. On the other hand, hyperkalaemia could occur in patients with acute or chronic kidney disease or heart failure, mostly in those patients who are taking drugs which inhibit the renin-angiotensin-aldosterone system.⁴ Patiomer, a powdered medication mixed with water and taken by mouth, works by binding potassium in the gastrointestinal tract, decreasing its absorption.⁴ The common adverse reactions noted in clinical trials include constipation, hypomagnesaemia, diarrhoea, nausea, abdominal discomfort, and flatulence.⁴ Because of its delayed onset of action, patiomer should not be used as an emergency treatment for the management of life-threatening hyperkalemia.⁴

The U.S. FDA on October 5, 2015 approved aripiprazole lauroxil extended release injection to treat adults with schizophrenia.⁵ Aripiprazole is an atypical antipsychotic drug, and it is a partial agonist of dopamine D(2), D(3), and serotonin 5-HT(1A) receptors and a modest antagonist of 5-HT(2A) receptors.⁶ The common side effect noted in clinical trials include feeling the urge to move constantly (akathisia).⁵

References:

1. FDA approves Zurampic to treat high blood uric acid levels associated with gout. Available in http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm478791.htm?source=govdelivery&utm_medium=email&utm_source=govdelivery. [Last accessed 31/12/ 2015]
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6. Dhillon S. Aripiprazole: a review of its use in the management of mania in adults with bipolar I disorder. *Drugs* 2012;72:133-62.

Contributed by: Dr. Pitchai Balakumar, AIMST University, Malaysia.



'8th Convocation Ceremony'

10th October, 2015 was a momentous day at AIMST University. Over 550 students, together with their families and friends returned to AIMST University campus to receive their graduation degree scrolls. It was indeed endearing to see many graduands and their families travelling long distances for this occasion. 8th Convocation ceremony was without a doubt one of the most meaningful and joyful events of the year in AIMST University. The Graduation Steering Committee 2015 managed to showcase a respected and dignified event to honour our graduates.

The ceremony began with the traditional procession of graduands walking into the Great Hall. Parents waved happily at the entourage, a sense of overwhelming joy and pride to see their child celebrate their accomplishments. A round of applause thundered across the Great Hall when the academic procession, grand procession and Guest of honour, the Chancellor and Chairman of AIMST University, YBhg Dato Seri Utama S. Samy Vellu entered the Great Hall. In his officiating remark, the Chancellor highlighted the importance of venturing into this world with a passion for lifelong learning, persistence and determination which would indeed guide our young graduates to greater heights. He was also immensely proud of the staff and management of AIMST University for bringing in transformative changes to the university.



The Vice Chancellor, Senior Professor Dr. Manickam Ravichandran, in his welcoming address was delighted with the progress of AIMST University, especially in the area of research and innovation. He shared his happiness for the live streaming of the Convocation ceremony 2015 to the public which was a maiden effort in the history of AIMST University. Many were absolutely delighted since with the live streaming, it gave everyone an opportunity to visualize the achievements of AIMST University globally. The Vice Chancellor thanked all the parents who had sent their child to a green, state of the art campus. He also requested their continuing support to take the University to global heights.

The conferment of the degrees was the culmination of the convocation ceremony. In recognition of the successful partnership between AIMST University and Kanagawa University, the President of Kanagawa University, Japan Professor Masaru Ishizumi was conferred with the honorary doctorate. This conferment forges a continued partnership between both the universities.



University Events



Graduands waited eagerly for their turn to receive their scroll. During the graduation ceremony, a total of 558 degrees were awarded to graduands from the various faculties. Individual students were also recognized for their outstanding overall academic performance in their programmes. Ms. Tan Xin Yi, from the Faculty of Dentistry was the recipient of the University Gold Medal Award 2015. A further 14 recipients of Doctor of Philosophy in Biotechnology, Master of Science in Biotechnology, Master of Business Administration, Master of Science in Medical Biochemistry, Master of Science in Medical Microbiology and Master of Science in Human Anatomy received their post graduate degrees.



The convocation ceremony ended joyfully when graduates walked out of the Great Hall with a feeling of accomplishment. Graduates were mobbed by their adoring family and friends with a multitude of flowers and photographs. It was indeed a wonderful sight to behold and cherish. Happy faces with joyful laughter and precious memories all around our beautiful campus certainly validated the 8th Convocation ceremony.



Contributed by: Mr. Christopher Parayil Varghese & Dr. K. Marimuthu, Graduation Steering Committee, 2015; AIMST University, Malaysia.

University Events

- Faculty of Medicine Academic Program (FoMAP) organised '**Antibiotic Awareness Week**' during 16th – 22nd November, 2015 to spread awareness and pledge responsible use of antibiotics.



- A one day workshop related to Endodontics, entitled '**Expedite your Endo**' was organized by Faculty of Dentistry on 12th December 2015 at AIMST Dental Institute. The aim of the workshop was to train the participants with new techniques and latest technology to perform faster and efficient root canal treatment. A total of 78 participants, including general practitioners and students registered and successfully completed the workshop. The workshop was inaugurated by a welcome address from Prof. Wihaskoro Sosroseno, Dean, FOD followed by lectures, live demonstration on the extracted human teeth followed by 'hands on training' of the participants using the training kit by Dr. Rahul Rathi, Lecturer, FOD. The workshop was overall successful and came to the end with the distribution of participation certificates (4 CPD points) and appreciation certificates to organizing committee members (2 CPD points), awarded by Malaysian Dental Association (MDA).



- The faculty of Dentistry conducted a two day '**OBE-Compliant Assessment Workshop**' on 16th - 17th November, 2015 at AIMST dental building. The speaker for the workshop was Dr. Nik from UiTM. It was a hands-on workshop concentrating mainly on examination question development, assessment and vetting procedures on **Outcome Based Education**.

University Events

PharmSAlympic 2015

- Pharmacy students organised an annual sports event 'PharmSAlympis 2015' during 16th–27th November, 2015. It involved participation of all four batches of the faculty. The aim of the event was to enhance and provide an opportunity for pharmacy students to experience and develop their skills and interest while participating in sports activities.



AIMST Marathon 10 km & Carnival 2015

- Medical students (MedSA) collaborated with 'SMMAMS' and organised a 'Unity Carnival' at AIMST University including a 10 km Marathon, food fair, shows for the public and blood donation campaign. The main objectives of this event was to promote healthy lifestyle among all AIMST staff, students and public. The event was officiated by YB Dato Dr. Leong Yong Kong, Kedah State Government Exco.

University Achievements

- Industry Centre of Excellence (ICoE)** introduced by **Ministry of Education, Malaysia** to empower the collaboration between industry and academia, has appointed **AIMST University** as an 'IPT spoke' for the Biotechnology Cluster in June, 2015.
- CREST (Collaborative Research in Engineering, Science and Technology)** has approved a grant of RM 630,526.32 for the project, 'Intelligent algorithm based remote *Aedes aegypti* mosquito and post-dengue patient monitoring, reporting and preventing solution for Dengue outbreak in Malaysia'. The project is a collaborative project involving AIMST University (FAS, FOM & FECT) (Dr. Lee Su Yin), Kontron Asia Pacific Design Sdn Bhd, University Sains Malaysia (USM) and Monash University, Kuala Lumpur on 15th September, 2015.
- The project 'Ezy inflatable bedpan with biodegradable disposable bag' lead by Ms. Siti Zaharah Ahmad, Prof. Dr. Mohd Baidi Bahari, Dr. Yu Chye Wah, Dr. S. Kathiresan and UNIMAP researchers won 'Silver Medal' during 14th International Conference and Exposition on Inventions by Institutions of Higher Learning ('PECIPTA 2015') organised by MOHE held at Kuala Lumpur Convention Centre (KLCC) from 4th-6th December, 2015.
- Mr. Guruswamy Prabhakaran, Dr. S. Kathiresan and Mr. Nadaraj Sivan won a 'Silver Medal' award for their invention 'Biotechnological Process Development for Production of Natural Butter Flavours' at 'PECIPTA 2015', Kuala Lumpur.
- Final year BSc (Hons) in Biotechnology student, Ms. Kavita A/P Udayappan won the 'Best Poster Award' at 26th Intervarsity Biochemistry Seminar 2015 hosted by the Monash University, Kuala Lumpur in collaboration with MSMBB (Malaysian Society for Molecular Biology and Biotechnology) on 16th May, 2015.
- MSc Biotechnology student, Ms. Narmataa Muthu was chosen as top 10 finalists in 'Malaysia BioCamp 2015', organized by the Ministry of Education, Novartis Malaysia, and BiotechCorp in support of ICoE Healthcare.
- Mr. Alex Teaw Lu Jin, a candidate with hearing impairment, graduated with MSc. Biotechnology degree during the 8th Convocation on 10th October, 2015. His achievements were reported in 'Bernama News Portal' on 10th October, 2015.



University Achievements

HollandStock and ECIC 2015'

The 'EdgeWiz Campus Investment Challenge (ECIC) 2015', a four weeks investment trading competition open to university and college students in Malaysia was initiated by The Edge Media Group. The competition required the student group to analyze and invest in publicly listed companies in Malaysia. Furthermore, it aims to educate a new generation of investors and promoting financial literacy and English through the Edge Education Foundations.

The AIMST FBM undergraduate team named, 'Hollandstock' bagged the 'First Runner Up Prize' competing against 4000 participants from 70 universities on 27th July, 2015. Students used their skills in qualitative and quantitative analysis of research on designated companies. The knowledge and experience they gained from preparing for ECIC, the knowledge gained through teamwork and guidance from experienced advisors enhanced their learning experience. 'ECIC 2015' is not our first finance based competition, however, the most rewarding with RM 5,000 and certificates.



MoU and MoA in 2015

S. No.	MoU / MoA Signed with	MoU / MoA Date
1	Epitome College, Kuala Lumpur, Malaysia.	6 th May, 2015
2	Megatech International College, Malaysia.	6 th May, 2015
3	Amanjaya Specialist Centre, Sungai Petani, Malaysia.	9 th June, 2015
4	SMT Technologies, Malaysia.	22 nd June, 2015
5	International Medical College, Bangladesh.	1 st August, 2015
6	University of Dhaka, Bangladesh.	4 th August, 2015

— as per Registry, AIMST University.

Major Grants received in 2015

S. No.	Faculty	Name of Principal Investigator	Grant Type	Grant Amount (RM)
1	FAS	Mr. G. Prabhakaran	PRGS	250,000
2	FOM	Dr. Heera Rajandas	FRGS	155,500
3	FOP	Dr. Vijayan Venugopal	FRGS	121,200
4	FOP	Dr. V. Ravichandran	FRGS	98,600
5	FOP	Dr. K. Venkates Kumar	FRGS	89,200
6	FOP	Mr. Ng Yen Ping	FRGS	66,000

PRGS (Prototype Research Grant Scheme) & FRGS (Fundamental Research Grant Scheme), MOHE, Malaysia.

— as per AIMST Research Management Centre.

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