TRIPURA INSTITUTE OF PARAMEDICAL SCIENCES

tips

ANNUAL JOURNAL 2019

11 Years of Excellence

Premier institute of North east India coordinating professional learning experiences and training for students in the field of paramedical Sciences.

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GROUP

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Editorial

Welcome to the 11th edition of TIPS Annual Journal. We are really proud and exuberant to acclaim that we are ready with all new hopes and hues to bring out the 11th journal which is going to unfold and unravelled the precious moments of college. The journal is to be viewed as a launch pad for student's creative urges to blossom naturally. As the saying goes, mind like parachute works best when opened. This humble initiative is to set the budding minds free allowing them to roam freely in the world of imagination and experience. The enthusiastic write ups of our young writers are sufficient to hold the interests and admiration of readers. This journal is indeed a pious attempt to make budding talents give shape to their creativity and learn the art of being aware because we believe that success depends upon our power to perceive, to observe and to explore. We are sure that the positive attitude, hard work, sustained efforts and innovative ideas exhibited by our young buddies will surely stir the minds of the readers and take them to the world of unalloyed joy and pleasure.

Our college is an incarnation of self-respect, love, affection, sensibility, responsibility and compassion which put the student into a 'state of flow' and, make them inquisitive to learn. The journal also espouses the institutional spirit which is built up within the campus through the collective actions, thoughts and aspirations. It gives me immense pleasure to ensure that this journal has successfully accomplished its objectives.

I take the opportunity to thank all the contributors as their contributions is the reason that make the journal endearing with our readers.

Thank you
Happy reading

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Message from the Desk of Secretary.

Dear Readers,

We are all proud and privileged that our Institute TIPS, has completed more than a decade of academic years and enriched the lives and lifestyles of more than a thousand students since inception. We have tried to accomplish our dream of erudite world in healthcare sector - we identified our goals, set aside time to achieve them. Our work ethic and achievements at TIPS are the collective results of each and every one associated with us here. The incessant support from Govt. sector is truly undeniable and has always inspired us towards reaching the stage we stand today.

At this unique institution, we hone the academic skills, finetune the aesthetic senses and work towards building a Holistic culture that values the individuality of each student, helping them realize their innate potential. We can humbly claim to have added to the professionalism of the healthcare industry in these years and will continue to do so in the years ahead.

TIPS believe in building strong leaders with our consistently growing placements& internship programs. Due of its strong Industry-aligned courses TIPS has always been a preferred campus of fresh talent for our recruiters. It indeed pleasure to retain an effective recruitment and placement cell to provide effective employment opportunities to our students. Our programs are designed to improve confidence levels, analytical thought, presentation delivery, communication skills and technical know-how so that skilled Paramedical and Nurses can be crafted to serve the healthcare industry. Today we boast that our students are not only placed in an across the nation but also has been successful to step out and make a mark in global healthcare sector too.

I take this opportunity to congratulate all our students, extremely talented faculty members, committed staff members for their commitment towards value-based quality teaching and unstinted efforts put in to ensure that each student is cared for in the college.

I wish you all my students and members happiness in your lives… Go forth and do yourselves proud!

Happily, Penned

Pankaj N. Trivedi
Secretary, TIPS

Message from Desk of CEO.

Dear All Members,

We are all destined to make choices and those choices do largely control our actions. I am most fortunate that our college blessed with so many motivated personals, well-wishers, motivators which ultimately lead us to such a meaningful year of Journey with excellence.

We continually face challenges in life - how we view them defines us. We at TIPS, choose to see challenges as steppingstones & opportunities that we have encountered along the way for us to use, to "step on" so that we can achieve more, develop further and ultimately actualize more of our goals!

It was quite inspiring to watch and witness the potential of our students unfolding at various stages and situations each day. Trying and testing times during the hectic semester system have elicited our students to put forth their best. The management and the staff have been supportive of the various activities that were undertaken by the students in view of helping them reach the pinnacle of perfection and professionalism in whatever task they took on, thus strengthen our journey of achieving excellence since inception.

Learning and growth at TIPS is not only confined to classroom and academic experiences. Other kinds of opportunities abound, not the least of them the daily occasions for friendship and fellowship with people from many different backgrounds and with many different interests. In addition, students participate in rich and varied extracurricular activities, ranging from athletics to cultural programs, from participation in Quiz to performance in national level competitions, from doing volunteer work in neighboring communities for social club to working as interns in reputed healthcare brands.

Our students have been fostered to be humane professional in every act and there is no doubt that they will indeed reach greater heights in life.

In the end, I would like to offer my best wishes to all members of TIPS for all its future endeavors.

K. Biswas
CEO, TIPS

From the desk of Principal TIPS, Paramedical

It gives me immense pleasure to pen down a few words for the Annual Journal of Tripura Institute of Paramedical Sciences (TIPS). Education is a lifelong process. Formal education is given by educational Institutions. At present Institution do not stop these. It tries to bring out the various potentialities from within the students as well as helps to develop the personalities of the individual. So, education means improvement of knowledge, skill and building character of the future leaders. Inspiring innovations and creativity are the two elements of successful education and college magazine is a successful amalgamation of both. Empowerment of students for their all round development is our cherished motto. All the teaching as well as non teaching staff of our Institution strengthens our journey to achieve excellence. It is quite mesmerizing to observe the potentials of our students unfolding at various stages and situations each day. Over whelming participation of our beloved students, the expected result is bound to flow.
Being Principal of this wonderful Institution I am happy to share that we all the members of TIPS family are celebrating 11th year of Foundation Day with joy and satisfaction.
Dear students let us take the oath that we should make TIPS a temple of learning through our diligence, devotion and dedication.

With Regards

Dr. Chhanda Banarjee
Principal, TIPS Paramedical

From the Desk of Principal TIPS, Nursing

Dear students, alumni, parents, colleagues and well wishers,

The school & College of Nursing, TIPS Tripura is the result of the powerful vision of the TIPS, spread headed by agroup of highly committed and dedicated management team. It has been 11 years since Tripura Institute of Paramedical Sciences (TIPS) was established in 2008. Looking back our institute is showered with blessings of god and have come a long way to establish ourselves as premium educational institute including paramedics and Nursing.

Nursing is considered to be the largest health care professionals in the world. Nursing is a practice to nurture towards another individual. We, in TIPS focus on academic progress along with holistic educational excellence of our students, with a strong moral base. Our academic institute is affiliated to Tripura university, Indian Nursing Council and Tripura Nursing Council.

The college has also achieved continuing success I n serving the cause of female education in the state, which is 83% approximately, of the total literacy rate 94.65%.

The college is having 26 faculty members with various specializations who are both motivated and passionate towards their profession along with a team of self motivated and self driven office and supporting staff. We seek to engage our industry associates from health and educational institutions to contribute in the process of learning by sharing their proficiency and practice s gained outside of the class room. The college enrolls 280 students every year, on an average, to its course.

We believe in openness of mind, dignity of conduct and mutual respect as the background of social and economic diversity and develop a confident understanding for the students in the global society.

I feel proud of our alumni who are holding responsible position in different part of the country.

I assure that our college will play a meaningful role in the competitive times to come and scale new heights in the years to come.

Prof. Sampa Sengupta
Principal (Nursing)

IMPORTANCE OF COMMITTEE

"Coming together is a beginning; Keeping together is progress; Working together is success" – Henry Ford.

Togetherness improves the quality of work. This is the backbone of forming different committees in TIPS. TIPS have different kinds of responsibilities towards its students and also to the society. Since its inception in the year of 2009, TIPS formed different committees under the guidance of our founder Principal Prof. Dr. Chandan Mitra with assistance of TIPS management, for smooth running of the working responsibilities. We needed to framework our academic activities, examination planning, disciplinary rules and regulations etc. So, with this vision TIPS formed committees. All committees have two conveners and Academic Head of the Institute is the President of all committees. All members of TIPS are members of different committees. Regarding any kind of problems or any upgradation of activities, either academic or nonacademic, are discussed in the related committees first. The decision of the members of the committees are final in any kind of activities in TIPS. Because – "Great things are done by a series of small things brought together." – Vincent Van Gogh

First, we formed the following committees –

1. **Academic committee**
2. **Examination committee**
3. **Scientific committee**
4. **Routine committee**
5. **Disciplinary committee**
6. **Hostel committee**
7. **Anti-ragging committee**
8. **Student's welfare committee**
9. **Cultural committee**
10. **Sports committee**
11. **Library committee**
12. **Publication committee**
13. **Woman's grievance cell**

All committee members attend the meeting that is set by the conveners to discuss regarding any kind of issues related to that committee. Also, the academic head passes all matters that should be discussed with the members of the related committee. With this type of cumulative activities, we could stop ragging in our institute. We can proudly announce that there is not a single incidence of ragging in our institute. With the progress of time we felt that we need to establish another 2 committees in our institute. These are –

1. **Training and placement cell**
2. **Supervisory committee**

The training placement cell looks after the placement of the pass out students in health sectors. Our students are placed in more than 100 reputed hospitals throughout India and abroad also. Training and placement cell organize the training and internship of students of different courses. The supervisory committee supervises the overall activities in TIPS, except academic activities. Supervisory committee assists any program that would be conducted by TIPS.

From Placement Desk for the year 2018-19

Tripura Institute of Paramedical Sciences, a joint venture with Government of Tripura and affiliated with Tripura Central University, established on August 24, 2009, in Hapania, Agartala is one of the premium Institute having world-class infrastructure in North Eastern India coordinating professional learning experiences and training for students in the field of Paramedical Sciences.

TIPS offers 7 degree paramedical (BHM,BPT,BMRT,BMRIT,BOPTM,BMLT,BMTOT) & 2 Nursing(Bsc. Nursing & ANM) courses .

TIPS offer graduate paramedical courses which have massive advantages compare to the diploma level courses, a graduate degree provides in-depth knowledge and clinical exposure, it also keeps students miles ahead in the competitive professional field in both Government & corporate sectors.

It is well proven that paramedic professionals are the backbone of modern super specialized healthcare sectors. WHO suggested that by 2025 approximately 90 lakh of skilled paramedics are required to serve different healthcare sectors in every step of providing quality healthcare services from diagnostic to proper treatment delivery to post-recovery period.

This is one of the reasons why TIPS have students from 16 different states across India who came to Tripura as these graduate courses are offered by very few institutes all over India.

Till date approx. 1500 paramedics & nursing students have passed out from TIPS & working in different renowned Government & corporate healthcare sector in India & abroad. Many of those have also completed their higher studies for better professional proficiency and also serving as faculties in different academic institutes.

We are associated with more than 100 corporate hospitals in India & abroad and many of our pass out students are working with famed brand names in the healthcare sector Pan India like AIIMS group, Apollo Group,HCG Group, NH Group, Manipal group, Starling group, Fortis Group, ILS Group, Tata group of Hospital & many more.

Like every year, this year, our students have achieved remarkable placement in various famed hospitals in India & abroad as well like Kuwait, Oman, Riyadh, Abu Dhabi, Dubai etc.

This year, we have remarkable campus session by multiple corporate hospitals both online & offline. Hospitals who have visited our campus so far in the 2019 are:

1. Apollo Hospital Kolkata,
2.Charnock Multispecialty hospital Kolkata,
3.Shranya Hospital, West Bengal
4. Saroj Gupta Cancer Hospital, Kolkata
5. Institute of Neurosciences, Kolkata
5. AMRI Group
6. NH Hospital, Guwahati
7. NH Hospital Kolkata
8. Woodlands Hospital Kolkata
9. Desun Hospital group
10. Chowdhury Eye Hospital, Silchar
11. ILS Hospitals group

Many other hospitals have already given us their proposal for their visit within next few days such as HCG Bengaluru, Paramedical Training Institute Chattisgarh, Portea Home based Health Care, Bengaluru, Advantage elderly care, Bengaluru, Sebak Hospital, Balasore, Jeevan Rekha Hospital, West Bengal etc

Thus, the BSc Nursing & ANM candidates passing out 2019 already received offer letters from 12 different hospitals.

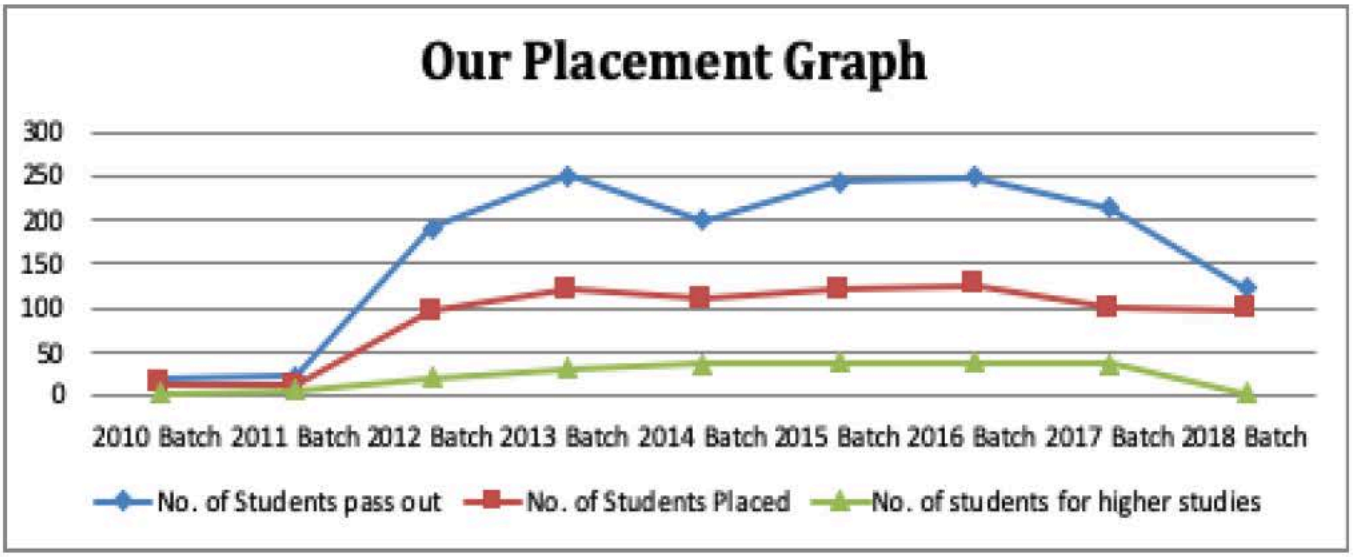
Apart from this the hospitals have provided offer letter to the passed-out candidates in the Dept. of Medical laboratories (BMLT), Operation Theater (BMTOT) and Radiology (BMRIT), Hospital Management (BHM), who appeared for the interview session also.

Many students had got offer letter while they are undergoing internship at their respective hospitals, so thus they got offer letter before they have their final degree in hand.

So far in the year 2019, we have achieved more than 80% placement in renound health care units, pan India & abroad.

Placement cell has organized different induction session with remarkable achievers of their respective professionals with the students, the basic aim of which is to bridge the gap between classrooms and healthcare sector.

Placement cell is regularly updating its Facebook page in the name of TIPS PLACEMENT, which provide students, regular updates regarding vacancies, opportunities of higher studies in different sectors pan India and abroad, thus became very popular among the students.



From Examination Desk for the year 2018-19

Examination Committee had been playing a major role science the inception of our institution in the year 2009 by conducting internal examinations and university examinations. As all the paramedical programs are being run under the affiliation of Tripura Central University, all the examination related matters are being conducted in accordance to the rules and regulation of the paramedical program. We undertake the evaluation process internally by periodical internal and terminal assessments in every academic session. Till academic session 2014-15, all the program were run by annual pattern of the examinations. From the academic session 2015-16, the credit based paramedical degree programs were implemented. The year-wise details of final year qualified students and the success rate are given below.

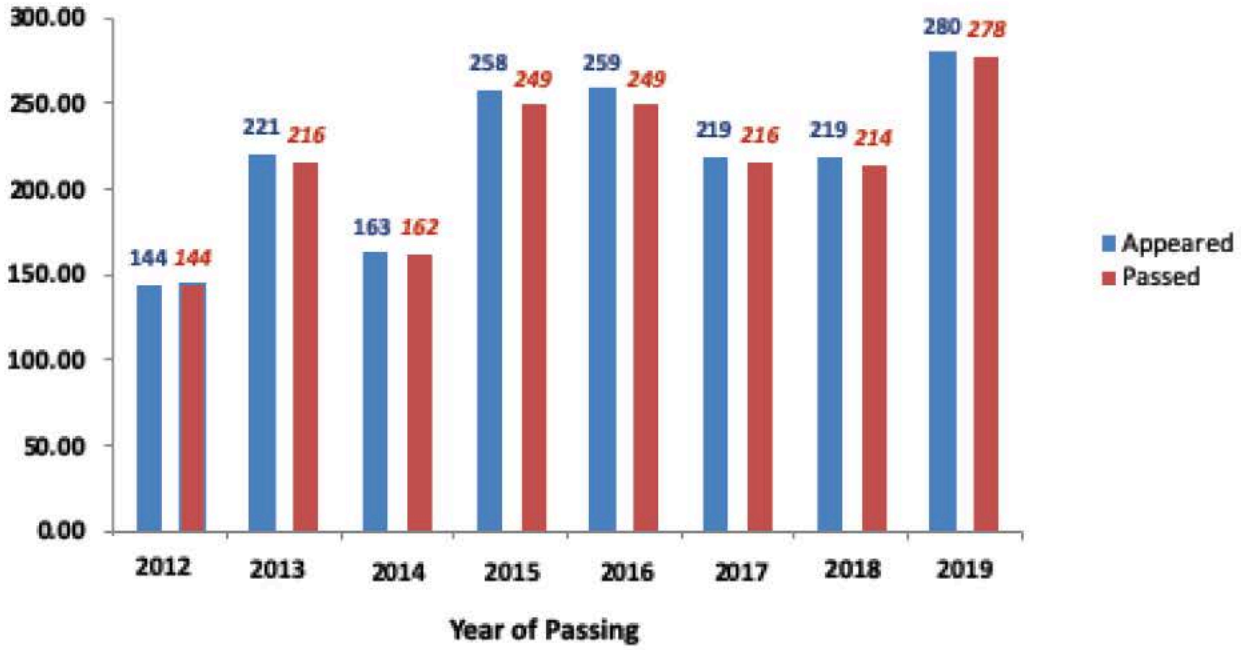


Fig 1: Details of students qualified the final year batch

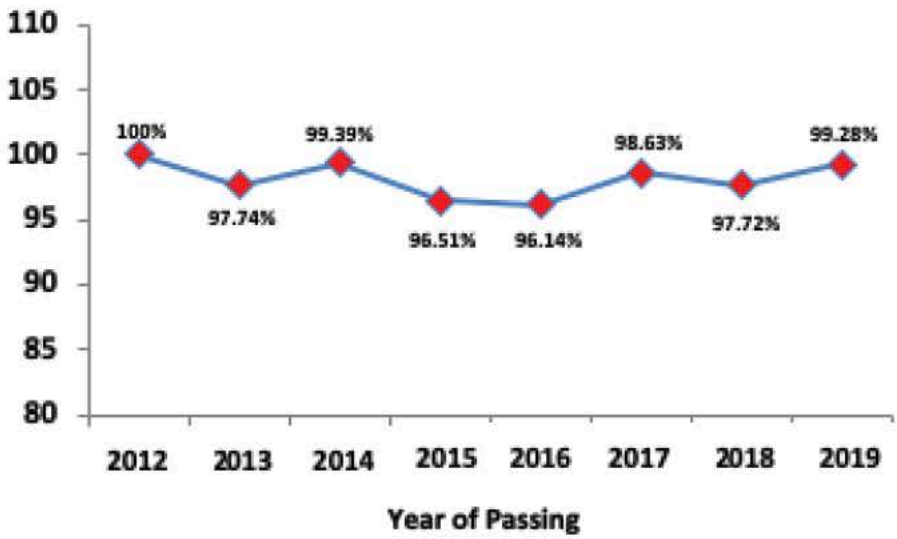


Fig 2: Year wise percentage of final year qualified candidates

Our students also showed their competence in the university examinations. This is due to enormous dedications of all the students, faculties and all other kinds of staff members of our TIPS fraternity. On the basis of the performance our students achieved gold medal in the different programs from Tripura University 36 gold medals were achieved by our students till 2017 from Paramedical Section. The list of gold medal awardees is yet to be published for the year 2018 and 2019. The detailed list of toppers in different programs from our college is given herewith.

Course –Wise Toppers from Paramedical Section of TIPS in Different Programs of Final Year Examination, 2019

Course	Name	Final Grade	CGPA
BMLT	Payel Deb	A+ Grade	7.58
BPT	Debika Deb	A+ Grade	7.01
BMRIT	Sayandita Saha	O Grade	8.02
BHM	Jatabeda Haldar	O Grade	8.37
BOPTM	Puja Chakraborty	A+ Grade	7.84
BMTOT	Susmita Chakraborty	A+ Grade	7.26
BMRT	Rituparna Mukherjee	O Grade	8.08

It's our promise that we will try to maintain the quality of evaluation process with the help and support of all members of the TIPS fraternity.

From the desk of Academic Committee

"Knowledge is power. Information is liberating. Education is the premise of progress, in every society, in every family." – Kofi Annan.

Academic Committee always tries to bring extra pace to the students. As per every year the committee selected students for having the best humanely qualities. Students also participated in interclass seminar competition for presentation on "ROLE OF TECHNOLOGY IN PATIENT CARE AND SAFETY." We always celebrate World Environment Day every year. This year whole world is very much concerned about the water conservation.

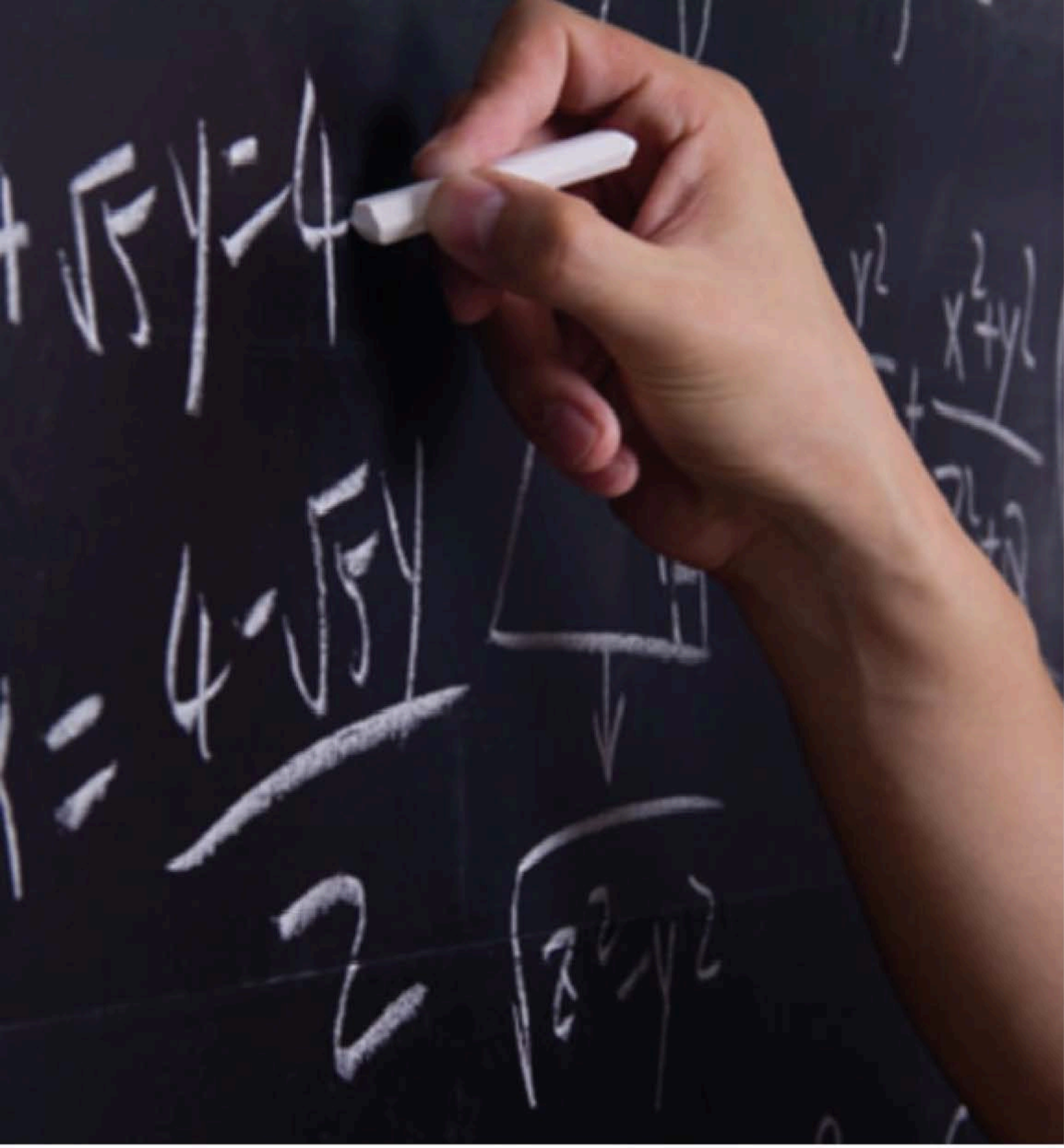
As per the report of CNN published on July 04, 2019 – "India has just five years to solve its water crisis, experts fear. Otherwise hundreds of millions of lives will be in danger." We must aware the people and educate the people to conserve water and to use drinking water properly. To fulfill this goal we arrange a morning rally that was started from Rabindra Shatabarshiki Bhawan for which we walked 4 km. and ended at the same venue on 13th July, 2019 following this Hon'ble Vice Chancellor of Tripura Central University Prof. Dr. Vijaykumar Laxmikantrao Dharurkar presented a seminar on that same day in our institute on water conservation. We are thankful to him.

To commemorate the World Environment Day We have arranged debate and essay writing competition. The topic of debate competition was – "IS URBANIZATION A BOON OR A BANE?" This is extremely important for the students to think for the society independently. They must know what is good and what is not. They must have to build up strong logic for their thoughts. That was the basic for this debate competition. With the same view we targeted our student to think about the future condition of environment in the world. For this, we arranged an essay writing competition for the students and the topic for essay writing competition was – "WORLD ENVIRONMENT AND HUMAN LIFE IN 2025."

The members of the committee with their fruitful endeavor has been succeeded to initiate anatomy practical class at AGMC, Agartala with cadaver. This was extremely necessary for the courses like, BPT, BMRT & BMRIT.

The next target of the committee for anatomy practical class is to establish a museum with human viscera at anatomy laboratory at TIPS. We prepare our students academically so sound that in every corner of India, all reputed hospitals have got students from TIPS as professionals.

This year 99.28% students have been passes from our institute. We are associated with more than 100 corporate hospitals and many of our pass out students are working with famed brand names in the healthcare sector Pan India like AIIMS Group, Apollo Group, HCG Group, NH Group, Manipal Group, Starling Group, CIMS Group, B.L. Kapoor Delhi, Tata Memorial Cancer Hospital, Kolkata & many more as well as abroad like Kuwait, Oman, Mauritius.



Teacher's Section

EARLY DETECTION OF AMBLYOPIA PREVENTS FUTURE BLINDNESS

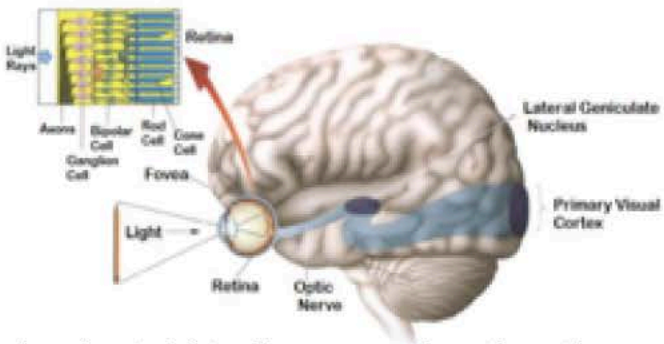
Goutam Datta
Assistant Professor, Department of Optometry
Tripura Institute of Paramedical Sciences

Amblyopia, other name is lazy eye, in which an eye fails to achieve normal visual acuity, even with spectacle or contact lenses correction. Due to abnormal development of vision both eyes may affect in infancy or childhood. It is the leading cause of vision loss amongst children.

Exactly amblyopia is not an obvious eye problem. Vision loss occurs due to nerve pathways between the brain and the eyes are not properly stimulated. In most cases, only one eye is affected. But in some cases, reduced visual acuity can occur in both eyes.

Abnormal development of visual system

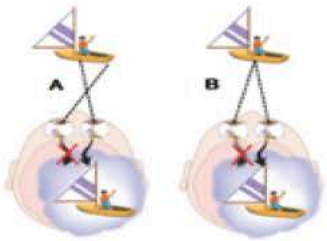
a) Imbalance in the muscles of the eye or strabismus may cause amblyopia. Strabismus may be inherited; it could be the result of long- sightedness or short-sightedness, a viral illness, or an injury.



b) Anisometropic amblyopia is a refractive error occurs due to myopia, hypermetropia, or astigmatism means the surface of the lens is uneven that causing blurred vision. A child with anisometropic amblyopia will be more long-sighted or short-sighted in one eye than the other, resulting in amblyopia developing in the eye that is affected more.

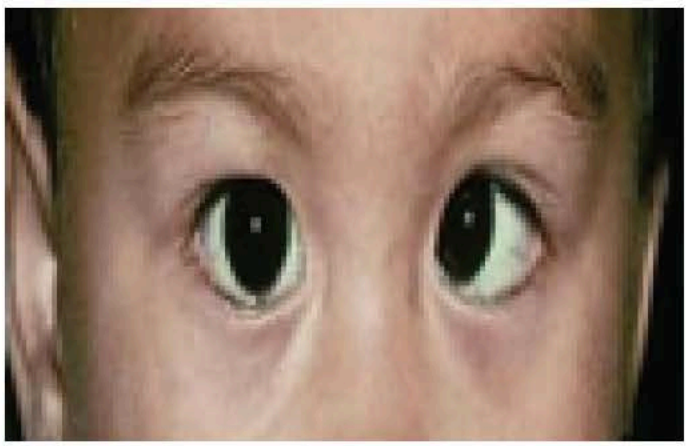
c) Stimulus deprivation amblyopia is the most uncommon cause of amblyopia. This could be due to corneal ulcer, scar, or some other eye disease; congenital cataract means baby is born with clouding of the lens; Ptosis means droopy eye lid; Glaucoma; Eye injury; Eye surgery; Vitreous haemorrhage; Uncontrolled occlusion therapy; Uncontrolled penalization therapy.

d) There are other number of additional causing factors has been identified, these are Prematurity; Low birth weight; Retinopathy of prematurity; Cerebral palsy; Mental retardation; Family history of anisometropia, strabismus, amblyopia. Maternal smoking and the use of drugs or alcohol are associated with increased risk for amblyopia and strabismus.



A] Eyes are not aligned, brain receives pictures it cannot fuse together, one of the picture is suppressed

B] One eye has poor vision, brain receives a blurry picture from that eye, the blurry picture is suppressed

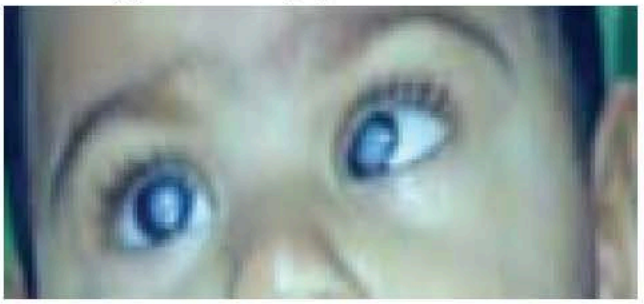


Types of amblyopia

Based on the causes of amblyopia, there are three types of amblyopia,.

i) Strabismic amblyopia: strabismus is the most common cause of amblyopia. To avoid double vision caused by poorly aligned eyes, the brain ignores the visual input from the misaligned eye. This type of amblyopia is called strabismic amblyopia.

ii) Refractive amblyopia: sometimes, amblyopia is caused by unequal refractive errors in the two eyes, despite perfect eye alignment. In such cases, the brain relies on the eye that has less uncorrected refractive error and the blurred vision from the other eye. This type of amblyopia is called refractive amblyopia or anisometropic amblyopia.



iii) Deprivation amblyopia: this type of amblyopia caused by something that obstructs light from entering and being focused in a baby's eye, as like as congenital cataract. Prompt treatment of congenital cataracts is necessary to allow normal visual development.

How do you know the Amblyopic eye?

A child with lazy eye will not be able to focus properly with one eye. The other eye will make up for the problem so much that the affected eye suffers. Amblyopic eye will not receive clear images; the brain would not receive clear signal, and will eventually start to ignore it. Most of the cases the brain and the good eye make up for the shortfall so well that the child does not notice, that they have problem. For that reason, lazy eye is often first detected after a routine eye test.

There is a common cause of amblyopia are strabismus. If a baby or young child has crossed eyes or some other apparent eye misalignment, must be check-up children's eye immediately.

Symptoms of a lazy eye may include: blurred vision, double vision, poor depth perception, eyes do not appear to work together, a squint either upwards, downwards, outwards, or inwards.

It is important for a child to have a vision check. It is especially important to have an early eye check if there is a family history of crossed eyes, childhood cataracts or other eye conditions.

A child may have amblyopia, if he or she cries or fusses when his or her eyes cover alternately.

To identify amblyopic eye there is a simple screening test at home by simply covering and uncovering the child's eyes when he or she is performing a visual task, such as watching television. If the child is not bothered when one eye is covered, this is the "good" eye, and the uncovered eye is amblyopic, which is causing blurred vision.

Early detection and treatment of Amblyopia

Though modern amblyopia treatments might improve vision in older children and adults, early detection and treatment of lazy eye is preferred for normal visual development and the best visual outcomes from amblyopia treatment.

It recommended that children have their first eye exam at 6 months of age, another exam at age 3 and a third exam prior to entering school to ensure vision is developing normally in both eyes and there is no risk of amblyopia.

Untreated lazy eye can lead to permanent visual problems. If later in life your child's stronger eye develops disease or is injured, he or she will depend on the poor vision of the amblyopic eye, so it is best to treat amblyopia early on.

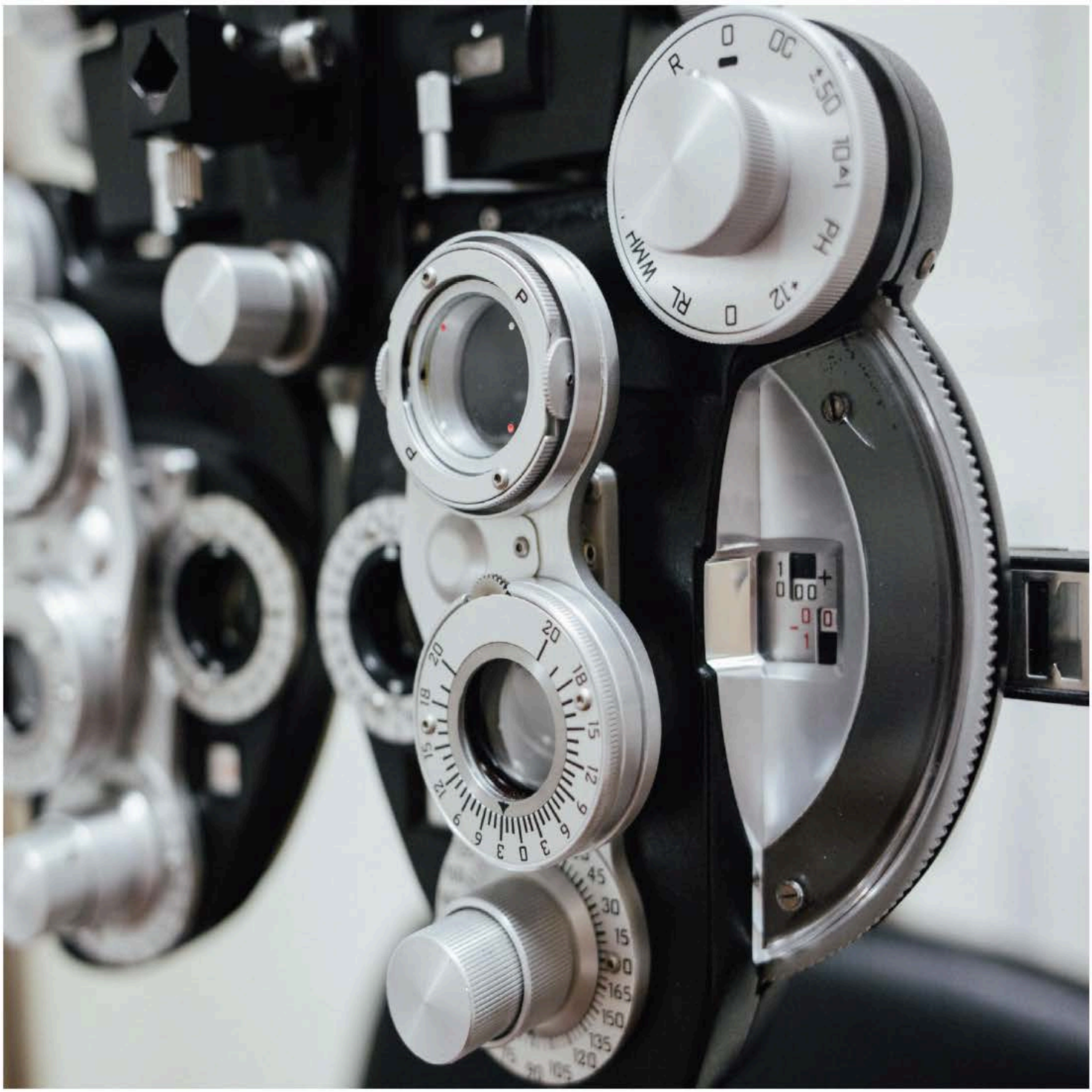
In some cases of refractive amblyopia, normal vision can be achieved simply by fully correcting the refractive errors in both eyes with prescribe glasses. Sometimes, glasses can solve the amblyopia and no more treatment is required.

Usually, at least some patching on the "good" eye is needed to force the brain to pay attention to the visual input from the amblyopic eye and enable normal vision development to occur in that eye. . A patch would not get rid of a squint, but it will improve vision in the lazy eye. A child should be encouraged to do close-up activities while

wearing the patch, such as reading, colouring or schoolwork. A child with amblyopia does not have to wear a patch all day; three to four hours daily for a total of twelve weeks is all that is usually needed to improve vision.

Children who cannot tolerate wearing a patch may be prescribed atropine eye drops instead called penalization. One advantage of using atropine eye drops doesn't require constant vigilance to make sure the child wears the patch. Atropine eye drops blurs vision in the good eye, which forces the child to use the eye with amblyopia more, to strengthen it. Atropine does have side effects that should be considered: permanent paralysis of the ciliary muscle after long-term atropine use, irritation in the eye, reddening of the skin and headaches.

Treatment of strabismic amblyopia often involves strabismus surgery to straighten the eyes, followed by eye patching and often some form of vision therapy to help both eyes work together equally.



Metabolic syndrome and insulin resistance....an overview

Nabamita Nath
Assistant Professor, Human Physiology

Objective: To correlate and study the occurrences of insulin resistance in metabolic syndrome subjects.
Metabolic syndrome: Metabolic syndrome (MS), the burning issue in present healthcare is a collection of cardio-metabolic risk factors that includes obesity, insulin resistance, hypertension, and dyslipidaemia. Although there has been significant debate regarding the criteria and concept of the syndrome, this clustering of risk factors is unequivocally linked to an increased risk of developing type 2 diabetes and cardiovascular disease. Regardless of the true definition, based on current population estimates, nearly 100 million have MS. It is often characterized by Insulin resistance.

Pathophysiology:

Central (Visceral) Obesity

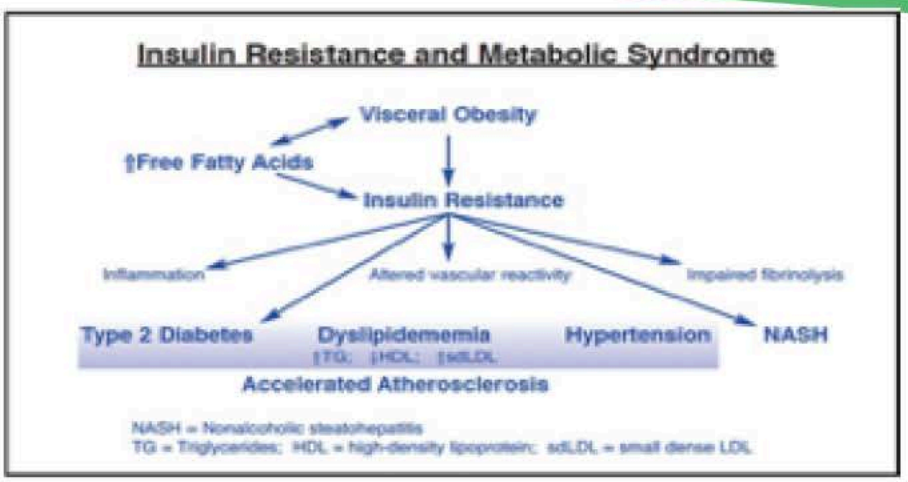
Abnormal fat distribution plays a key role in the pathogenesis of metabolic syndrome. Obesity is associated with an increased risk of diabetes and cardiovascular disease. Furthermore, visceral fat by itself is a strong determinant of insulin sensitivity and B-cell function. Waist circumference is found to be superior to the body mass index as a measure of visceral adiposity and is widely used to quantify central obesity in clinical practice. Further, visceral adiposity as measured by waist circumference correlates better with the risk of diabetes or coronary vascular disease than total obesity as measured by body mass index. The IDF definition draws attention to the fact that waist circumference may be population specific because differences have been observed between various ethnic groups and thus may warrant the use of different cut off values while defining metabolic syndrome1. Central obesity represents dysfunctional adipose tissue whose deregulated metabolism leads to increased free fatty acid flux in the liver and muscle. This contributes to insulin resistance that further worsens the dyslipidaemia.

Insulin Resistance (IR)

It can be defined as "a state where there is a reduced biologic effect for any given concentration of insulin". It is a central feature of metabolic syndrome, showing a strong association with most components of the syndrome. The prevalence of insulin resistance in the general population has seen a phenomenal increase in the past decade. It may be seen during pregnancy or starvation but is more widely recognized in patients with type II diabetes mellitus. Insulin resistance manifests as a broad clinical spectrum evolving progressively from hyperinsulinemia to glucose intolerance and eventually to frank diabetes. Therefore, the diagnosis of insulin resistance in the various definitions of metabolic syndrome has required the presence of one or more features from this spectrum. Genetic susceptibility, along with environmental factors such as lifestyle, diet, stress, and smoking, can trigger the development of insulin resistance. The metabolic consequences, hyperinsulinemia, hyper-glycemia, and lipid and lipoprotein dysregulation, act in synergy to potentiate and sustain the pathologic state of insulin resistance. Patients with metabolic syndrome have fivefold higher risk for developing diabetes. Insulin resistance and altered glucose metabolism, the key component of the syndrome, may be responsible for this increased risk. Stroke patients with metabolic syndrome exhibited an atherogenic profile with higher concentrations of triglycerides and lower HDL cholesterol. Patients, especially women, with metabolic syndrome and atherosclerotic disease were at an increased risk for ischemic stroke or transient ischemic attack even in the absence of diabetes.

Insulin and the insulin receptor:

Insulin is a peptide hormone, consisting of 51 amino acids with a molecular weight of 5808 Da, secreted by the pancreas as either the full length proprotein or as the fully biologically active form in which the c-peptide is cleaved. Insulin binds to its receptor (IR) in target tissues including skeletal muscle, liver, and adipose tissue. The IR gene is located on chromosome 19 and is comprised of 22 exons and 21 introns, spanning 150 kb.



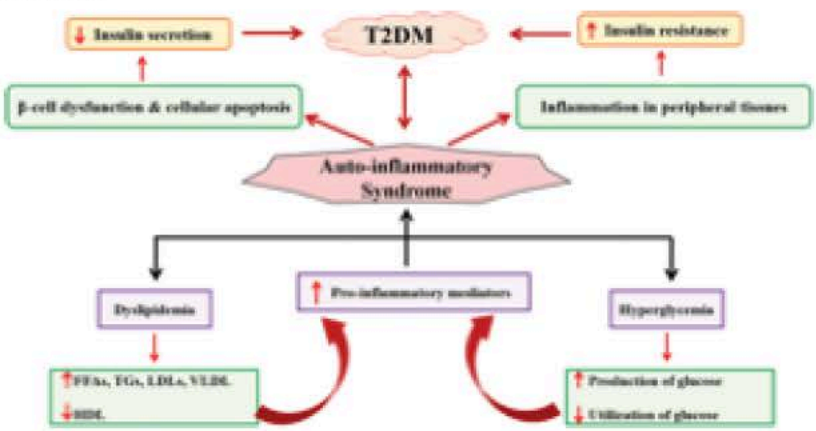
Mechanism of Insulin Resistance:

Resistance to the biological functions of insulin is a key feature of the metabolic syndrome and an important contributing factor in the pathogenesis of type II diabetes mellitus (T2DM). In the early stages of insulin resistance, the pancreas compensates by increasing the secretion of insulin into the bloodstream in an attempt to overcome defects in peripheral insulin action.

In response to this increased demand for insulin production, the β-cells hypertrophy. Under fasting conditions, basal compensation is sufficient to maintain blood glucose in the normal range. Following a meal though, when glucose is rapidly absorbed from the gut, a relative lack of insulin due to inadequate compensation is detected as the glucose excursion over time is exaggerated. This inability to take up and dispose of glucose appropriately following a meal or glucose challenge is known as glucose intolerance.

It is important to note that genetic mutations or defects in the participants of the insulin-signalling cascade only in rare occasions underlie the insulin resistance and T2DM. It is now well supported that lipid over supply and alterations in substrate metabolism due to inactivity are central underpinnings of chronic tissue inflammation and contribute to the manifestation of peripheral insulin resistance. Tissue accumulation of bioactive lipid species in peripheral tissues activate pro-inflammatory signalling pathways and novel PKCs; and as reviewed in references which are shown to impair insulin signal transduction by altering key phosphorylation events and key protein-protein interactions. Post receptor defects are thought to account for much, if not all, of the impairment in muscle insulin action observed in T2DM. Many agree that impaired insulin action at the level of IRS-1 occurs as a result of stress kinase activation and impaired phosphorylation of IRS-1. Reduced IRS-1 phosphorylation on critical tyrosine residues and prevents binding with p85 of PI3K and downstream signal transduction.

Conclusion:



MS is a rapidly growing global epidemic, is a cluster of cardiovascular risk factors that is associated with a high risk of morbidity and mortality. Lifestyle modification and therapeutic targeting individual components of the syndrome have been recommended as primary and secondary prevention strategies. Insulin resistance and central obesity are increasingly recognized as being central to the pathogenesis of metabolic syndrome. Insulin resistance commonly manifests as hyper-glycemia during acute illness and in the perioperative period.

Early postoperative mobilization and exercise have some promise, but their role must be defined clearly. Modulation of the other components of the syndrome in the acute phase of illness and in the perioperative period needs further evaluation.

Overall, future trials are needed to (i) establish the effects of long-term training programs on prevention and reversal of MS; (ii) compare long-term effects of exercise versus drug therapy sustainability, (iii) explore further the mechanisms by which different training modalities increase insulin sensitivity and prevent MS; (iv) further investigate the potential of exercise to promote metabolic health independent of significant weight loss.

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AYUSHMANN BHARAT- A GAME CHANGER IN INDIAN HEALTH CARE

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Hon'ble Prime Minister Narendra Modi in his Independence Day speech in 2018 announced the launch of Ayushman Bharat National Health Protection Scheme (AB-NHPS). Touted as the biggest government-sponsored health scheme in the world, it aims to facilitate healthcare services to over 10 crore families that belong to the urban and rural poor.

The world's biggest healthcare scheme was launched on 23rd September 2018 by PM Modi in Ranchi, the capital of Jharkhand. It became operational on 25th September, which also marks the birth anniversary of Pandit Deendayal Upadhyaya.

Since its launch, the scheme has been renamed as PM Jan Arogya Yojana (PMJAY). It offers insurance cover of Rs 5 lakh per family. About 50 crore citizens stand to benefit, and it covers only the poor and economically backward segment.

Who does the scheme cover?

The scheme is aimed at providing insurance cover to economically backward people in rural and urban areas who will be identified on the basis of data from the Socio-Economic Caste Census (SECC) 2011. The cover will be Rs 5 lakh per family per year.

The entire process is paperless and cashless in public hospitals and empanelled private hospitals. Also, to include more women and children in the scheme, there's no limit on the age and size of the families. The more specific eligibility criteria for this scheme are given below:

For rural areas:

- Families living in only one room with kachcha walls and kachcha roof
- Families with no adult members aged between 16 and 59
- Female-headed family with no adult male member in the 16-59 age group
- Families having at least one disabled member and no able-bodied adult member
- SC/ST households
- Landless households deriving a major part of their income from manual casual labour
- Destitutes and those surviving on alms
- Manual scavenger families
- Tribal groups
- Legally-released bonded labourers

For urban areas:

- The following 11 occupational categories of workers are included in the list by the government:
- Ragpicker
- Beggar
- Domestic worker
- Street vendor/cobbler/hawker/ other service providers working on the streets
- Construction worker/ plumber/ mason/ labour/ painter/ welder/ security guard/ coolie and other head-load workers
- Sweeper/ sanitation worker/ gardener
- Home-based worker/ artisan/ handicrafts worker / tailor
- Transport worker/ driver/ conductor/ helper to drivers and conductors/ cart-puller/ rickshaw puller
- Shop worker/ assistant/ peon in small establishment/ helper/ delivery assistant / attendant/ waiter
- Electrician/ mechanic/ assembler/ repair worker
- Washerman/ chowkidar

The scheme aims at addressing the shortcomings of Rashtriya Swasthya Bima Yojana (RSBY). Hence, it also includes the beneficiaries of the RSBY scheme in all the states where it is active.

How does the scheme work?

The scheme covers medical expenses for secondary care and most tertiary care procedures. No premium needs to be paid by the beneficiaries for the insurance cover. The insurance includes pre- and post-hospitalization expenses.

All the empanelled hospitals will have 'Ayushman Mitra', a person recruited to coordinate with the beneficiaries of the scheme and provide assistance to patients. A helpdesk will also be provided at all the empanelled hospitals to identify eligibility, authenticate documents, and assist in the enrolment process.

Eligibility shall be checked by various processes, which include inspecting letters with QR codes that belong to be beneficiaries and authenticating the same. Those who wish to enroll for the scheme will be identified by the government through various means, but there are certain documents they will need to possess. A bank account is the most basic of these requirements.

The Game Changer in Indian Healthcare:

Ayushman Bharat - National Health Protection Mission will have major impact on reduction of Out of Pocket (OOP) expenditure on ground of:

Increased benefit cover to nearly 40% of the population, (the poorest & the vulnerable)

Covering almost all secondary and many tertiary hospitalizations.

Coverage of 5 lakh for each family, (no restriction of family size)

This will lead to increased access to quality health and medication. In addition, the unmet needs of the population which remained hidden due to lack of financial resources will be catered to. This will lead timely treatments, improvements in health outcomes, patient satisfaction, improvement in productivity and efficiency, job creation thus leading to improvement in quality of life.

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WHO ARE THE HOSPITAL MANAGERS?

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Hospital managers are responsible for making decisions regarding the financing and structure of a hospital. They also evaluate new procedures and health care efficiency. Hospital managers are involved in working with physicians, making policy decision, overseeing patient care, budgeting, accounting and marketing among other relevant hospital activities necessary to ensure the organization functions smoothly and successfully.

Hospital managers work with administrators to plan and co-ordinate the health services of a hospital. They supervise all areas of a hospital, including physicians, health information, technicians, nursing, medical records and more. Managers create many reports to analyze the effectiveness of various departments and work to reach financial goals and maintain budgets. They work to improve the efficiency of care, keep up-to-date on new laws, represent the facility at governing boards and organize the records of facility services.

Hospital managers need to understand hospital economics, labour relations and human resources and have proven management skills. Because of the intense paper work and staff interaction, it is important for managers to have strong verbal and written communication skill. Hospital managers must also be able to work well with a variety of professionals from Doctors, nurses, paramedical staff and other executives. They must demonstrate problem solving and technical skills to find creative solutions for staffing and administrative problems and follow advancements in technology.

Ref: http//www.google.com

COMPUTER AIDED DETECTION AND DIAGNOSIS IN MAMMOGRAPHY

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Abstract:
Computer-aided mammography (CAD) is rapidly gaining clinical acceptance, but few date demonstrates it benefits in clinical environment. These CAD is software techniques which allows the radiologist to overcome false diagnosis and interpretation in imaging of breast tissues with suspicious regions.

Key Points:
Breast cancer, Radiologist, screening mammography, Calcification, cysts, carcinoma.

INTRODUCTION:

Breast cancer is an alarming global health issue among women worldwide now a days. Breast cancer lies second leading causes of cancer mortality after lung cancer. Unites State have the highest life time risk of developing breast cancer.

So, the early diagnosis of the breast cancer increase our survival rates and decrease the treatment options. The methods of detection of breast cancer includes – Breast self-examination, clinical breast examination, Mammography. The Mammography procedure for breast cancer detection includes- Screening mammogram and diagnostic mammogram. The diagnostic mammogram is done after screening mammography when pathologies are recorded after screening mammography. Screening mammogram interpreters the early clinical unsuspected breast carcinoma to rule out early detection of breast cancers.

Mammography allows for efficient diagnosis of breast cancers at an earlier stages with screening Mammogram. Radiologists misdiagnose (10-30) % of the malignant cases and send for surgical biopsy, (10-20) % cases are actually malignant.

Computer- Aided Detection (CAD) place a key role in the early detection of breast cancer and reduce the false interpretation of breast cancer and reduce the unnecessary surgical procedures and death rates among women.

Goals of CAD technique:

- Improving radiologist performance of interpretation.
- Reduce intra and inter variability of radiologists.
- CAD improves radiologist's productivity.
- Estimates the risk of a woman future chances of developing cancer (?).

Purposes of CAD technique:

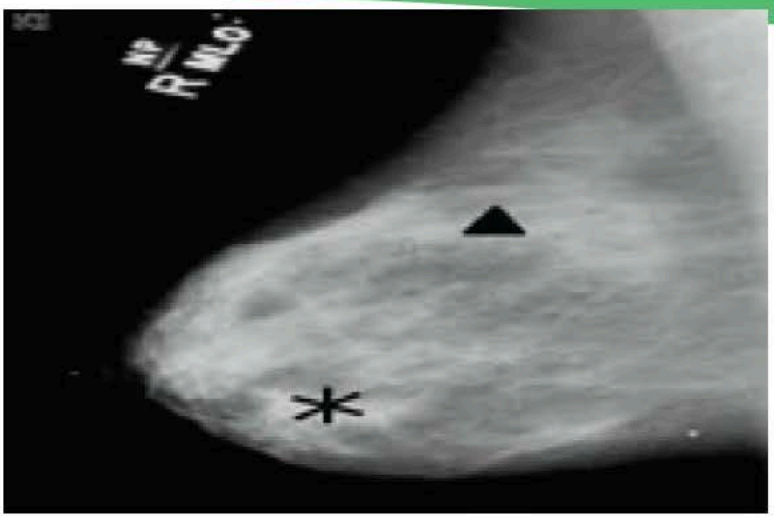
Mammography is the reliable method in early detection breast carcinoma. But, due to high number of mammograms to be read , the accuracy rates tends to decline .Double reading of mammograms has been proven to increase the accuracy at high cost, CAD can assist the medical staff to achieve high efficiency and effectiveness.

CAD is actually a software and recent advanced technique for detection of calcification and masses. It works like a "spell checkers" in Microsoft word file and corrects the false interpretation.

CAD uses "Δ" to mark calcification and "*" to mark cyst and masses

Stages of CAD technique:

CAD is consists of following stages:-



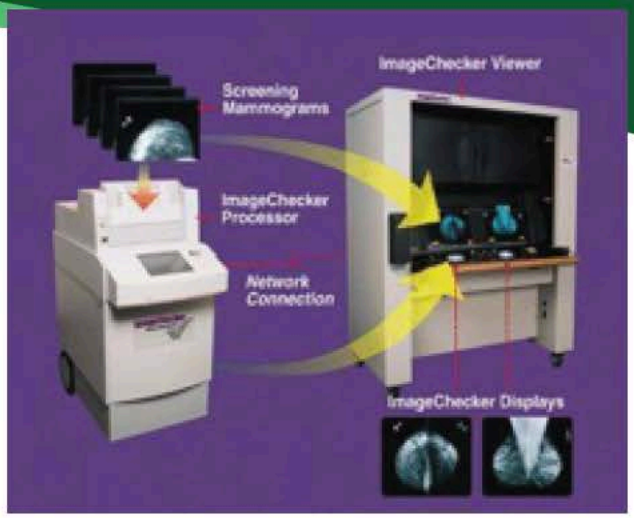
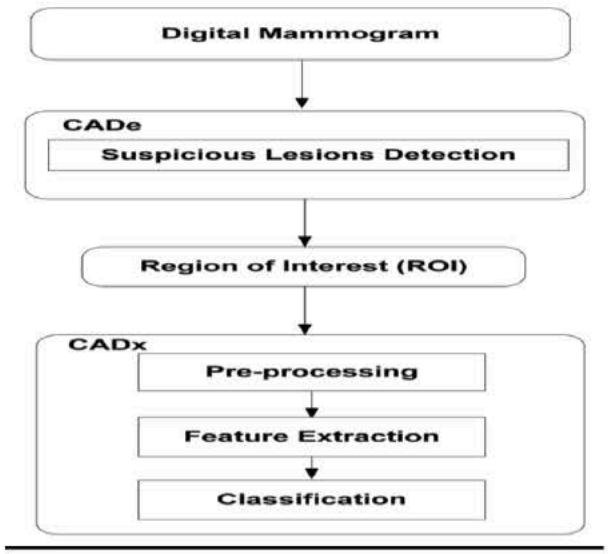


Fig: Processing in CAD Imaging plate"Δ" to mark calcification and "*" to mark cyst and masses.



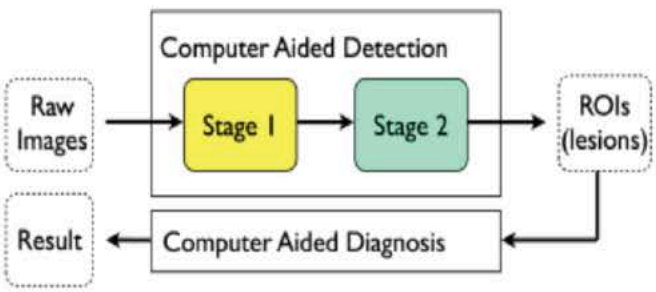


Fig: Pocessing in CAD scaners.

Methods of CAD technique:

CAD is a software processor, here the screen mammogram plate is inserted again into the processor and the image plate is re-reader. Then the suspected lesion areas are detected.

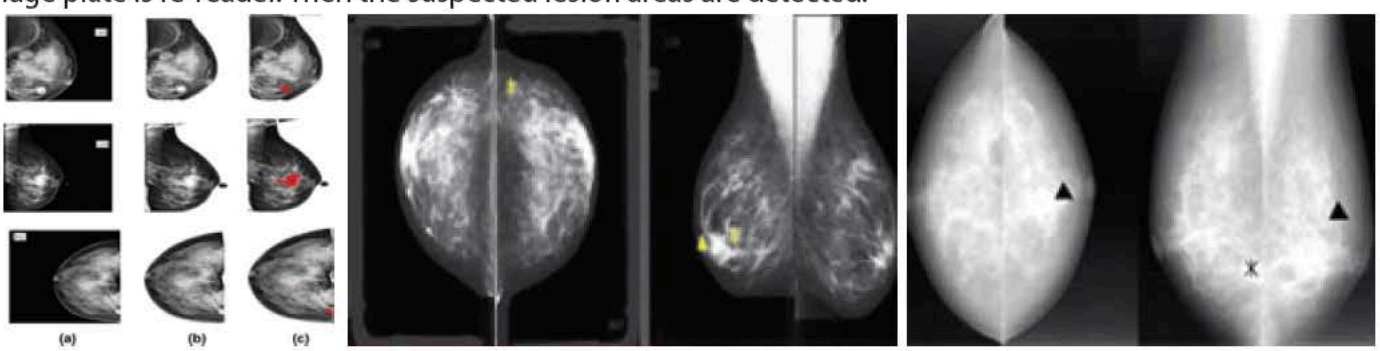


Fig: After Screening mammogram plate processessed in CAD scaners.

Conclusion:

When comparing the radiologist's performance without CAD and with CAD the malignancies detection and interpretation rates drastically reduced to 6.5 % from 78%.

The use of CAD Software processor in the interpretation of screening mammogram can increases the detection of early stage malignancies without undue effect on the recall rate or positive predictive value for biopsy and remove the false interpretation.

BIRADs Rating for **Breast Carcinoma**:

BI-RADS CATEGORIES

BI-RADS 0 (incomplete): Recommend additional imaging -- mammogram or targeted ultrasound
BI-RADS 1 (negative): Routine breast MR screening if cumulative lifetime risk ≥ 20%
BI-RADS 2 (benign): Routine breast MR screening if cumulative lifetime risk ≥ 20%
BI-RADS 3 (probably benign): Short-interval (6-month) follow-up
BI-RADS 4 (suspicious): Tissue diagnosis
BI-RADS 5 (highly suggestive of malignancy): Tissue diagnosis
BI-RADS 6 (known biopsy-proven malignancy): Surgical excision when clinically appropriate

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It's too much maa...

Dr. Subhra Chattopadhyay
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After returning back to home Rohit complains about backache to his mom, Afisa complains about cervical pain to her dad, Likewise Ronita, Habib, Writtik several other children of different schools are complaining pain in different parts of their body, mainly upper part of the body. In maximum cases this is about musculoskeletal problems. Their guardians took them to doctors and all cases doctors diagnosed that this may be due to heavy load carriage which indicates that the children are carrying huge load in their school bags. The weight they are carrying, the way they are carrying and the duration for which they are carrying the schoolbag there is no rationale. Now a days this is of great concern of the modern society. Many musculoskeletal and nervous problems are originating for carrying excessive load in schoolbag.

Researchers of different country have reported that psychological factors and a history of discomfort were predictors of schoolbag-related back discomfort, while gender (being female) and a history of discomfort were predictors of schoolbag-related shoulder discomfort [1]. Guidelines for safe schoolbag carriage that are based on mechanical factors alone could not be upheld. The association between duration of carriage and back discomfort warrants further investigation [2].

A review by Mackenzie et al. [3] in 2003 of backpack loads carried by school students during a school day identified that children were carrying as much as 30% to 40% of their body weight. This review, while acknowledging that no critical maximal load had been established (to address back pain), recommended around 10% of the child's bodyweight as a maximum limit. The following year, a review by Brackley and Stevenson [4] stated that the majority of work does not consider recommended limits for loads carried by children, likewise recommending a maximal load of between 10 to 15% of the child's bodyweight. Since these reviews, more recent research has suggested that these loads are lighter and in some instances may be meeting this recommendation, with loads ranging from 10% [5,6,7,8] to 25% [9,10,11,12,13] of the school child's bodyweight. However, this recent research, in agreement with the earlier reviews, also suggests that these loads have a negative impact (e.g., increased forward lean, pain, skin pressure) on children's bodies [5,6,7,8,9,10,11,12,13].

In modern society the alarm associated with load carriage are not only prevalent in school children but in workplace occupations as well. Tactical populations, like those serving in law enforcement, firefighting, first response and the military, by nature of their occupations, are also required to wear and carry loads that can range from 8 kg in law enforcement officers [14] to 45 kg or more in army personnel [14]. In these well-trained adult populations, injuries like rucksack palsy (also identified in school children who carry loads [4]) and in the lower back are associated with load carriage [15]. With the growing spine

vulnerable to physical stresses, and physical stress being a predisposing factor in adolescent spinal pain [16], the supposition that the carrying of a backpack is a contributing risk factor to adolescent low back pain bears merit [17,18]. This supposition is supported by Sheir-Neiss et al. [19], who found that backpack use and backpack weights were independently associated with back pain in adolescent school children. Research suggesting that once someone is injured carrying a load they are more likely to be injured again [20], any injuries induced by carrying a school backpack should be concerning for all involved and justify the concerns raised by parents, educators and health care professionals regarding the role of heavy backpacks [3,18].

Biomechanical Impacts of School Backpack Loads

Several studies found that backpack load carriage impacts the gait of school children, resulting in significant changes to gait parameters [5,10,11,21,22,23]. Hong et al. [10] found that as loads increased to 15% of students body weight, stride length decreased, with a significant decrease in step length, cadence and walking speed [11]. Two studies [10,12] reported findings associated with the student's body posture, including an increase in lumbosacral angles, flattening of the thoracic kyphosis, and deepening of the cervical lordosis. Backpack loads of even 5% of body weight can significantly change trunk and lower limb angles and loads of 15% of student's bodyweight resulted in changes in all the angles pertaining to head, neck, and lower limb, affecting overall posture [6,12]. Two studies found that when a backpack was worn it significantly affected foot-ground contact area and increased plantar contact pressure, especially at loads equivalent to 25% of the student's body weight [8,24]. As such, Pal et al. [6] recommends that students should be carefully screened for possible 'high load-high exposure time' with a loaded backpack to reduce the risk of foot discomfort or injuries and to allow correct development of the foot structure and functionality during critical stages in a child's physical development [8]. However, future research is needed to investigate links between load and exposure time, to quantify the level at which risk increases, and to determine whether statistically significant findings do in fact translate to clinical significance. Alternative carriage of the backpack by changing the positioning occasionally between anterior and posterior positions might help relieve the effects of the backpack on the spine, as identified by Chow et al. [25] who found that spinal curvature and repositioning errors were affected by backpack anterior–posterior positioning and CG levels.

Physiological Impacts of School Backpack Loads

The effects of backpack loads on the students' respiratory muscle strength (inspiration and expiration) and lung function was reported in a study by Viera and Garrett [26] involving four conditions: (1) unloaded and standing still in erect stance; (2) 15% body weight load in a bilateral backpack stance; (3) 15% body weight load in a one shoulder backpack stance; and (4) 15% body weight load with a mono strap backpack, in erect stance. They found that when walking with more than 10% body weight load there was an increase in breathing rate and a decrease in trunk range of movement. The mono strap backpack, which is positioned diagonally across the body, was found to significantly lower forced vital capacity, forced expiratory volume in one second and maximal expiratory pressure. This bag design was found to restrict respiratory efforts and decrease expiratory muscle strength, so the double strap backpack is recommended as the preferred backpack option [27].

Physical Discomfort Caused by School Backpack Loads

Eleven of the 21 studies included provided evidence that students who were carrying backpacks recorded bodily pain, redness, swelling, fatigue and/or musculoskeletal discomfort in the upper or lower back, upper or lower trapezius, shoulders, neck or forearms, with most of the students relating their pain, fatigue and discomfort to lugging heavy schoolbags around every day—almost all students reported relief upon taking their backpacks off [7,9,13,29,30,25,21,22,28]. The prevalence of back pain was reported to be higher among female students, students in non-public schools, and those in secondary schools

Further research of this nature is required to assess (1) the contemporary loads students carry around on a school day in their school backpacks; (2) the impacts those loads may have on the student's body; and (3) the biomechanical, physiological and physical effects that occur to the students as a result of carrying these loads. Despite the shortcomings of recent, available research in this area, it is nevertheless apparent that the wearing of school backpacks does have significant biomechanical, physiological and discomfort impacts on the wearer, especially with loads above 10% of the student's body weight. Further research is required to identify and select optimal backpacks for school children, with careful consideration of the loads to be carried on a daily basis, duration of backpack load carriage and how students best carry the load to minimize the negative outcomes associated with wearing school-related backpacks.

Though some Indian researchers developed new techniques for loads to be carried in the school bag and also redesign of schoolbag as reported by thebusinessline. com. [31]. They suggested to place the heavier books closer to the spine and comparatively lighter one away from it. Shoulder straps of the backpack should be adjusted to the extent where the tip of the backpack is positioned at two centimeters above the waistline of the bag holder. The decision of the Delhi Directorate of Education follows Centre's order and guidelines for capping the weight of school bags for classes 1-10 [32]. All parents should be concerned about the circular given by the Directorate of Education that has been framed meticulously to mention how many books to be carried, when the backpacks are to be carried and when that should be in resting condition. Perhaps this can maintain somehow the burden of the children during carriage of their schoolbag.

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ANGER MANAGEMENT

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Difficulty managing anger can lead to a variety of problems; saying things you regret, yelling at your kids, threatening your co-worker, sending rash emails, health problems or physical violence.

You might just find that waste a lot of time thinking about events that upset you or venting about people you dislike. Anger management isn't about never getting angry. Instead, it involves learning how to recognize, cope with, and express anger in healthy and productive ways.

1. Think before you speak: In the heat of the moment, it's easy to say something you'll later regret. Take a few moments to collect your thoughts before saying anything- and allow others involved in the situation to do the same.

2. Once you're calm, express your anger: As soon as you're thinking clearly, express your frustration in an assertive but non-confrontational way. State your concerns and needs clearly and directly, without hurting others or trying to control them.

3. Get some exercise: Physical activity can help reduce stress that can cause you to become angry. If you feel your anger escalating, go for a brisk walk or spend some time doing other enjoyable physical activities.

4. Take a timeout: Timeouts aren't just for kids. Give yourself short breaks during times of the day that tend to be stressful. A few moments of quiet time might help you feel better prepared to handle what's ahead without getting irritated or angry.

5. Identify possible solution: Instead of focusing on what made you mad, work on resolving the issue at hand. Anger won't fix anything and might only make it worse.

6. Stick with 'I' statement: To avoid criticizing or placing blame which might only increase tension – use "I" statement to describe the problem. Be respectful and specific. Eg. Say "I' am upset that you left the table without offering to help with the dishes" instead of "you never do any housework".

7. Don't hold a grudge: Forgiveness is a powerful tool. If you allow anger and other negative feelings to crowd out positive feelings, you might find yourself swallowed up by your own bitterness or sense of injustice. But if you can forgive someone who angered you, you might both learn from the situation and strengthen your relationship.

8. Use humour to release tension: Lightening up can help diffuse tension. Use humour to help you face what's making you angry and any unrealistic expectations you have for how things should go. Avoid sarcasm, though- it can hurt feelings and make things worse.

9. Practice relaxation skills: When your temper flares, put relaxation skill to work. Practice deep-breathing exercises, imagine a relaxing scene, or repeat a calming word or phrase, such as "Take it easy". You might also listen to music, write in a journal or do a few yoga poses- whatever it takes to encourage relaxation.

10. Know when to seek help: Learning to control anger is a challenge for everyone at times. Seek help for anger an issue if you anger seem out of control, causes you to do things you regret or hurts those around you.

A Brief History of Blood Transfusion

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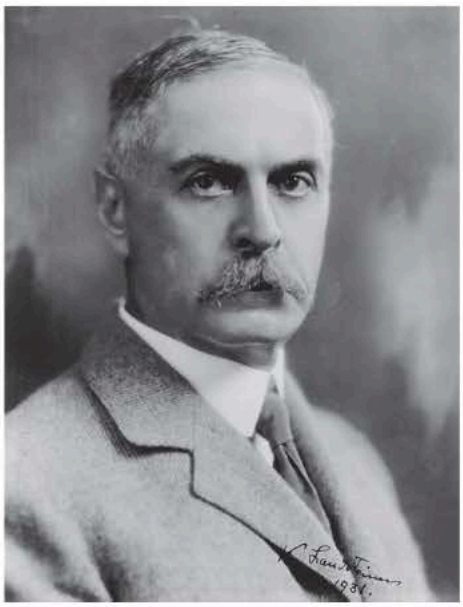
The history of blood transfusion began when the British Physician William Harvey discovered the circulation of blood in the year 1628. He was the first known physician to describe completely, and in detail, the systemic circulation and properties of blood being pumped to the brain and body by the heart. The first known blood transfusion was attempted soon afterward. Thereafter, in the year 1658 the Dutch Biologist and Microscopist Jan Swammerdam observed and described red blood cells. Another Dutch microscopist, Antoni van Leeuwenhoek, who was an acquaintance of Swammerdam, described the size and shape of "red corpuscles" and rendered the first illustration of them in 1695.

Illustration of "red corpuscles" of blood by A. van Leeuwenhoek (Letter 42 of Arcana Natura, 1695)

In the year 1965, the first recorded successful blood transfusion in animal occurred in England by Physician Richard Lower to keep a dog alive by transfusing blood from other dogs. Then doctor Lower was in November 1667, he worked with Edmund King to transfuse sheep's blood into a man who was mentally ill. In the same year, Jean-Baptiste Denis in France also was successful to transfuse the blood from sheep to man. Doctor Lower was interested in advancing science as he believed that the man could be helped, either by the infusion of fresh blood or by the removal of old blood. It was difficult to find people who would agree to be transfused. At the very beginning blood transfusion gathered some popularity in France and Italy, but medical and theological debates arose, resulting in transfusion being prohibited in France later on. As a result investigation and trials in transfusion was affected.

In the year 1818, British obstetrician James Blundell performed the first successful transfusion of human blood to a patient for the treatment of postpartum hemorrhage. He proposed that a blood transfusion would be appropriate to treat severe postpartum hemorrhage. He had seen many of his patients dying in childbirth, and determined to develop a remedy. However, he was also familiar with the work of Leacock in Edinburgh, who said that the transfer of blood from one species would be harmful to another. Therefore, Dr. Blundell conducted a series of experiments using animals, and observed that as long as the blood was transfused quickly, a transfusion would be successful with a syringe even after it had been collected in a container. He also discovered the importance of letting all the air out of a syringe prior to the transfusion. Although there is some conflict between whether his first successful transfusion occurred in 1818 or 1829, it seems more likely that in 1829 he performed the first successful human to human transfusion. Regardless of the date, it is agreed upon that Dr. Blundell extracted four ounces of blood from the arm of the patient's husband using a syringe, and successfully transfused it into the patient. He conducted ten documented blood transfusions, five of which were beneficial to the patients. During his life he also devised many instruments for the transfusion of blood, many of which are still in use today.

However, dissatisfaction of blood transfusion prompted a brief wave of enthusiasm for transfusion of milk as a substitute of blood. Although transfusion of cow's milk was first attempted in Canada in 1854, this form of treatment achieved its greatest popularity in the United States between 1873 and 1880 by transfusing milk from cows, goats and humans. However, the increased frequency of adverse reactions to milk, as well as the advent of isotonic saline solutions as a "blood substitute", prompted its discontinuance after 1984. Transfusion of isotonic solutions rapidly achieved tremendous popularity. Meanwhile, blood transfusion lay dormant, awaiting the momentous discoveries of the 20th century by eminent scientists, physician and immunologist.



In 1901, the discovery of human blood groups by the Nobel Laureate Dr. Karl Landsteiner, an Austrian Physician, gave a new dimension in the history of blood transfusion. He deduced the existence of three blood groups, which he called A, B, and C. Today these are known as A, B, and O. In 1902, Landsteiner's colleagues followed advice he gave them and identified a fourth type – the AB group. Previously, scientists had abandoned using blood transfusions because they could cause severe illnesses or death. Landsteiner showed blood transfusions failed because incompatible blood groups were mixed. In 1903, with his colleague Max Richter, Landsteiner showed how a blood group could be determined from a sample of dried blood, and suggested this could also be used in crime-fighting to narrow the list of possible suspects.
After the revolutionary discovery of Dr. Landsteiner, later on in the year 1907, Dr. Ludvig Hektoen suggests that the safety of transfusion might be improved by cross-matching blood between donors and patients to exclude incompatible mixtures and Dr. Reuben Ottenberg performs the first blood transfusion using blood typing and cross-matching at Mt. Sinai Hospital, New York. During World War-1 blood transfusions were used to save wounded soldiers' lives. In the year 1914, discovery of the use of sodium citrate to stabilize blood for several days, transfusions became practical and allowing it to be stored. In 1917, Captain Oswald Robertson of the U.S. Army, attached to the British Army on the Western Front, began the world's first blood bank. Thereafter in the year 1939-1940, Karl Landsteiner, Alexander Wiener, Philip Levine and R.E. Stetson discovered Rh blood group system. Rh blood grouping system solved major problems in blood transfusion after ABO grouping.
Considering the importance of blood transfusion, U.S. government established a national blood collection programme in 1940. In 1940, Edwin Cohn develops cold ethanol fractionation, the process of breaking down plasma into components and products. Albumin, gamma globulin and fibrinogen are isolated and become available for clinical use. He became famous for his work on blood fractionation during World War-2. In particular, he worked out the techniques for isolating the serum albumin fraction of blood plasma, which is essential for maintaining the osmotic pressure in the blood vessels, preventing their collapse. Dried plasma became a vital element in the treatment of wounded soldiers during World War-2. Transfusions with purified albumin on the battlefield rescued thousands of soldiers from shock. In 1940, the Red Cross begins National Blood Donor Service to collect blood for the U.S. military with Dr. Charles R. Drew, formerly of the Plasma for Britain program, as medical director. Thereafter in the year 1945, Robin Coombs along with Arthur Mourant and Rob Race described the use of anti-human globulin to identify incomplete antibodies. The process became known as the Coombs test, also known as the antiglobulin test.
For maintenance of the quality of blood donated and reduce the risks of blood transfusion associated disorders, several studies was performed. In 1947, syphilis testing was initiated on each unit of blood donated along with the ABO blood typing. Red Cross began the first nationwide blood program for civilians by opening its first collection center in Rochester, N.Y. in 1948. In 1964, Plasmapheresis was intro-

duced as a means of collecting plasma for fractionation. Hepatitis B surface antigen (HbsAg) testing of donated blood begins in the year 1971 and in 1983 the U.S. blood banking groups issue their first warning about Acquired Immune Deficiency Syndrome (AIDS). In the year 1985, the first test to detect the antibody to HIV on March 3 and Red Cross Blood Services regions begin testing all newly donated blood. Subsequently in the year 1992, testing of donor blood for HIV-1 and HIV-2 antibodies (anti-HIV-1 and anti-HIV-2) was implemented. In the year 2002, nucleic acid amplification test (NAT) for HIV and hepatitis C virus (HCV) licensed by the Food and Drug Administration.

Early transfusions used whole blood, but modern medical practice commonly uses only components of the blood, such as red blood cells, white blood cells, plasma, clotting factors, and platelets. Beginning with William Harvey's experiments on the circulation of blood, research into blood transfusion began in the 17th century, with successful experiments in transfusion between animals. However, successive attempts by physicians to transfuse animal blood into humans gave variable, often fatal results. Finally, due to contributions of eminent scientists, physicians, biochemists, immunologist and other associate personals blood transfusion occupied an effective life saving procedure for the victims. Although due to advancement in medical science and surgical procedures, the number of blood transfusion and or the amount of blood to be transfused has been reduced now a day, the discovery of blood transfusion had been saving several lives science its implementation in medical field.

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BLACK HOLE

Narayan P Bhaumik, Asst. Professor, TIPS

Black holes are some of the strangest and most fascinating objects in outer space. They're extremely dense, with such strong gravitational attraction that even light cannot escape their grasp if it comes near enough. Black holes are not really holes at all. They are opposite of empty. Black holes have the most matter stuffed in to the least space of any object in the universe. Black holes have a finite life time due to emission of Howkins radiation.

Albert Einstein first predicted the existence of black holes in 1916, with his general theory of relativity. The term "black hole" was coined many years later in 1967 by American astronomer John Wheeler. After decades of black holes being known only as theoretical objects, the first physical black hole ever discovered was spotted in 1971.

The theory of general relativity predicts that a sufficiently compact mass can deform spacetime to form a black hole. The boundary of the region from which no escape is possible is called the event horizon. In many ways, a black hole acts like an ideal black body, as it reflects no light Moreover, quantum field theory in curved spacetime predicts that event horizons emit Hawking radiation, with the same spectrum as a black body of a temperature inversely proportional to its mass. This temperature is on the order of 60 nanokelvin (i.e., 60 billionth of a degree Kelvin) for black hole of one solar mass (M⊠), making it essentially impossible to observe.

The presence of a black hole can be inferred through its interaction with other matter and with electromagnetic radiation such as visible light. Matter that falls onto a black hole can form an external accretion disk heated by friction, forming some of the brightest objects in the universe. If there are other stars orbiting a black hole, their orbits can be used to determine the black hole's mass and location. So far, astronomers have identified three types of black holes: stellar black holes, supermassive black holes and intermediate black holes.

Stellar black holes — small but deadly

When a star burns through the last of its fuel, the object may collapse, or fall into itself. For smaller stars (those up to about three times the sun's mass), the new core will become a neutron star or a white dwarf. But when a larger star collapses, it continues to compress and creates a stellar black hole.

Black holes formed by the collapse of individual stars are relatively small, but incredibly dense. One of these objects packs more than three times the mass of the sun into the diameter of a city. This leads to a crazy amount of gravitational force pulling on objects around the object. Stellar black holes then consume the dust and gas from their surrounding galaxies, which keeps them growing in size. According the Harvard-Smithsonian Center for Astrophysics, "the Milky Way contains a few hundred million" stellar black holes.

Supermassive black holes — the birth of giants

These enormous black holes are millions or even billions of times as massive as the sun, but are about the same size in diameter. Such black holes are thought to lie at the center of pretty much every galaxy, including the Milky Way.

Scientists aren't certain how such large black holes spawn. Once these giants have formed, they gather mass from the dust and gas around them, material that is plentiful in the center of galaxies, allowing them to grow to even more enormous sizes.

Supermassive black holes may be the result of hundreds or thousands of tiny black holes that merge together. Large gas clouds could also be responsible, collapsing together and rapidly accreting mass. A third option is the collapse of a stellar cluster, a group of stars all falling together. Fourth, supermassive black holes could arise from large clusters of dark matter. This is a substance that we can observe through its gravitational effect on other objects; however, we don't know what dark matter is composed of because it does not emit light and cannot be directly observed.

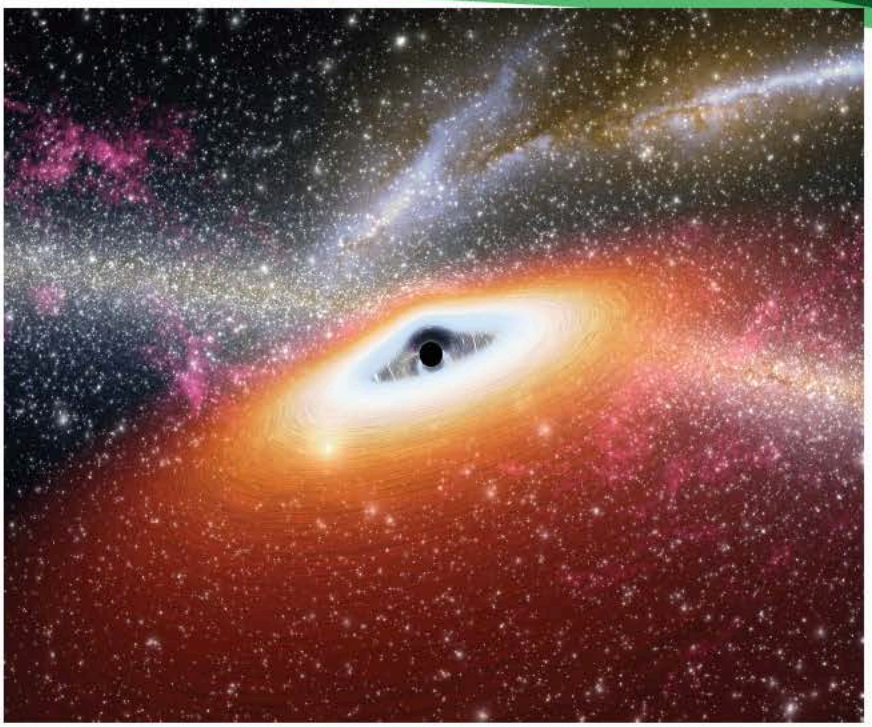

Fig 1: Illustration of a young black hole, such as the two distant dust-free quasars spotted recently by the Spitzer Space Telescope.

Intermediate black holes - stuck in the middle

Scientists once thought that black holes came in only small and large sizes, but recent research has revealed the possibility that midsize, or intermediate, black holes (IMBHs) could exist. Such bodies could form when stars in a cluster collide in a chain reaction. Several of these IMBHs forming in the same region could then eventually fall together in the center of a galaxy and create a supermassive black hole.

Black holes have three "layers": the outer and inner event horizon, and the singularity.

The event horizon of a black hole is the boundary around the mouth of the black hole, past which light cannot escape. Once a particle crosses the event horizon, it cannot leave. Gravity is constant across the event horizon.

The inner region of a black hole, where the object's mass lies, is known as its singularity, the single point in space-time where the mass of the black hole is concentrated.

If you fell into a black hole, theory has long suggested that gravity would stretch you out like spaghetti, though your death would come before you reached the singularity. If a star passes too close to a black hole, the star can be torn apart.

Though many people find it hard to believe that things such as black holes are really are in our universe, there are still scientists whose jobs revolve around finding proof their existence. Their evidence continues to grow, so that maybe one day we can be 100% sure of black holes' existence in our own galaxy

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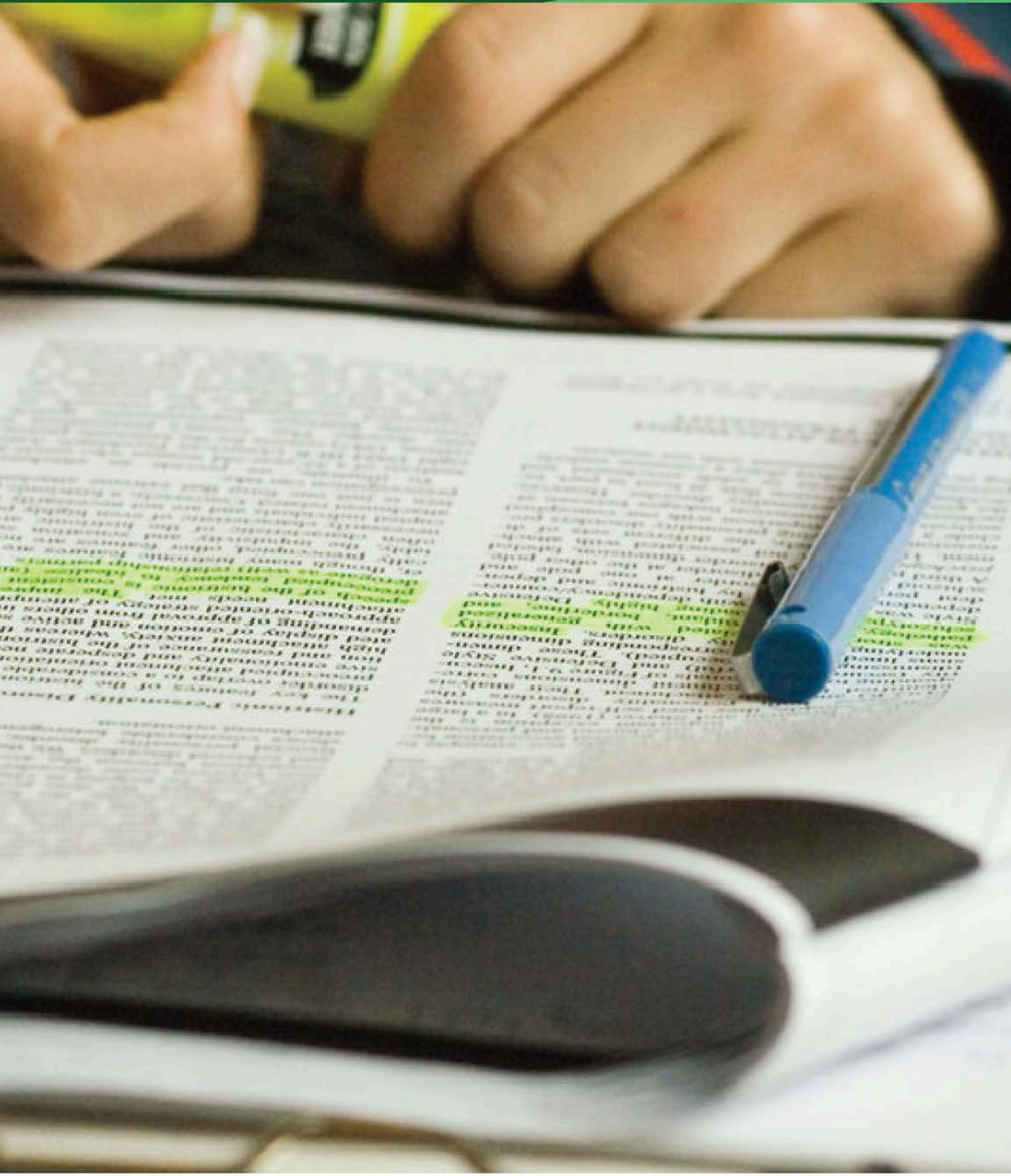


Student's Section

NIPAH virus

Dipankar Das (BMLT 3rd year)

Introduction: NIPAH virus is a zoonotic virus (it is transmitted from animals to humans) and can also be transmitted through contaminated food or directly between people. In infected people, it causes a range of illnesses from asymptomatic (subclinical) infection to acute respiratory illness and fatal encephalitis.

NIPAH virus disease is endemic to south Asia, where sporadic outbreaks have been noted in Malaysia, Singapore, India, and Bangladesh since the virus was first isolated in 1999.

Clinical description: The incubation period is typically 4-20 days. Patients usually present with fever, malaise, and headache, shortness of breath, cough, sore throat, nausea and vomiting. Severe cases progress to encephalitis, which may be complicated by seizures and coma.

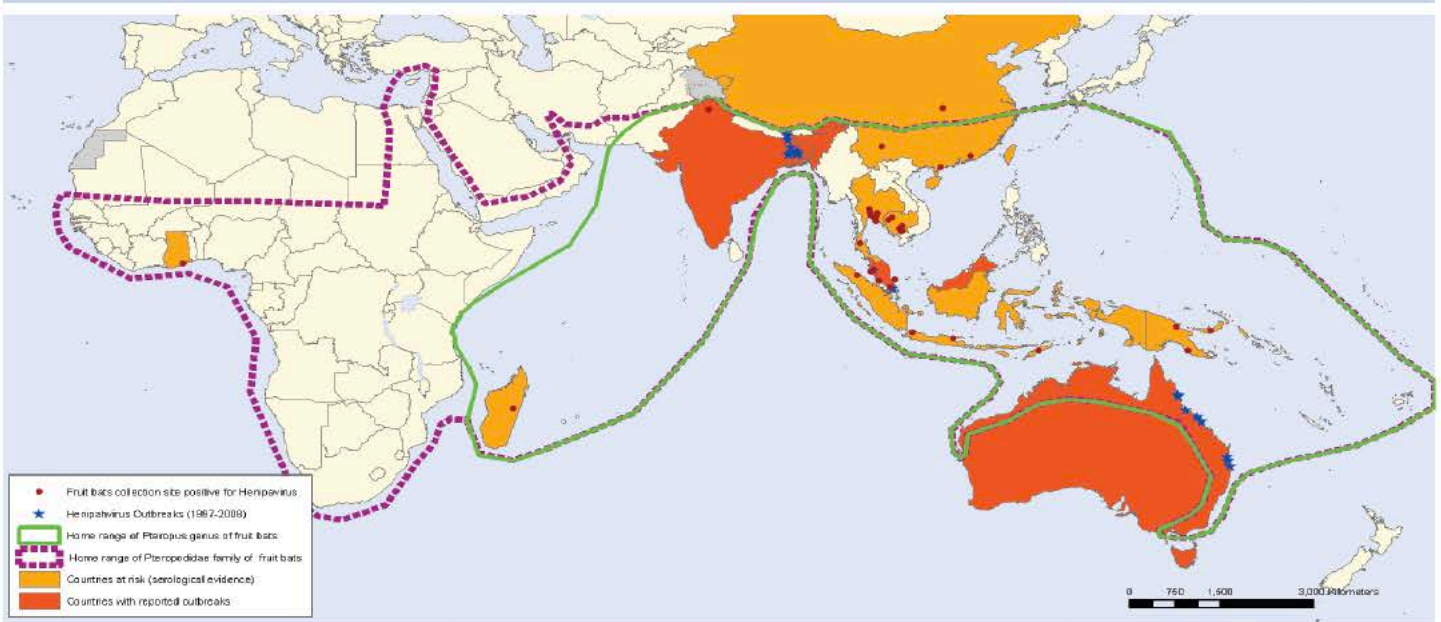
Etiology: NIPAH virus is a member of the Paramyxoviridae family, genus Henipavirus. The virus appears to be maintained in fruit bats (Pteropus genus), which may infect humans through direct exposure to their saliva or excreta, including through contaminated food, especially palm tree sap. Bats may also transmit the virus to intermediate hosts, especially pigs, which develop respiratory disease and may pass the virus on to humans. Serologic evidence of infection has also been noted in cats, dogs and horses.

Transmission: During the first recognized outbreak in Malaysia, which also affected Singapore, most human infections resulted from direct contact with sick pigs or their contaminated tissues. Transmission is thought to have occurred via unprotected exposure to secretions from the pigs, or unprotected contact with the tissue of a sick animal.

In subsequent outbreaks in Bangladesh and India, consumption of fruits or fruit products (such as raw date palm juice) contaminated with urine or saliva from infected fruit bats was the most likely source of infection. NIPAH virus spread directly from human-to-human through close contact with people's secretions and excretions.

Sign and symptom: Infected people initially develop symptoms including fever, head-

Geographic distribution of Henipavirus outbreaks and fruit bats of Pteropodidae Family



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: Global Alert and Response Department
World Health Organization
Map Production: Public Health Information
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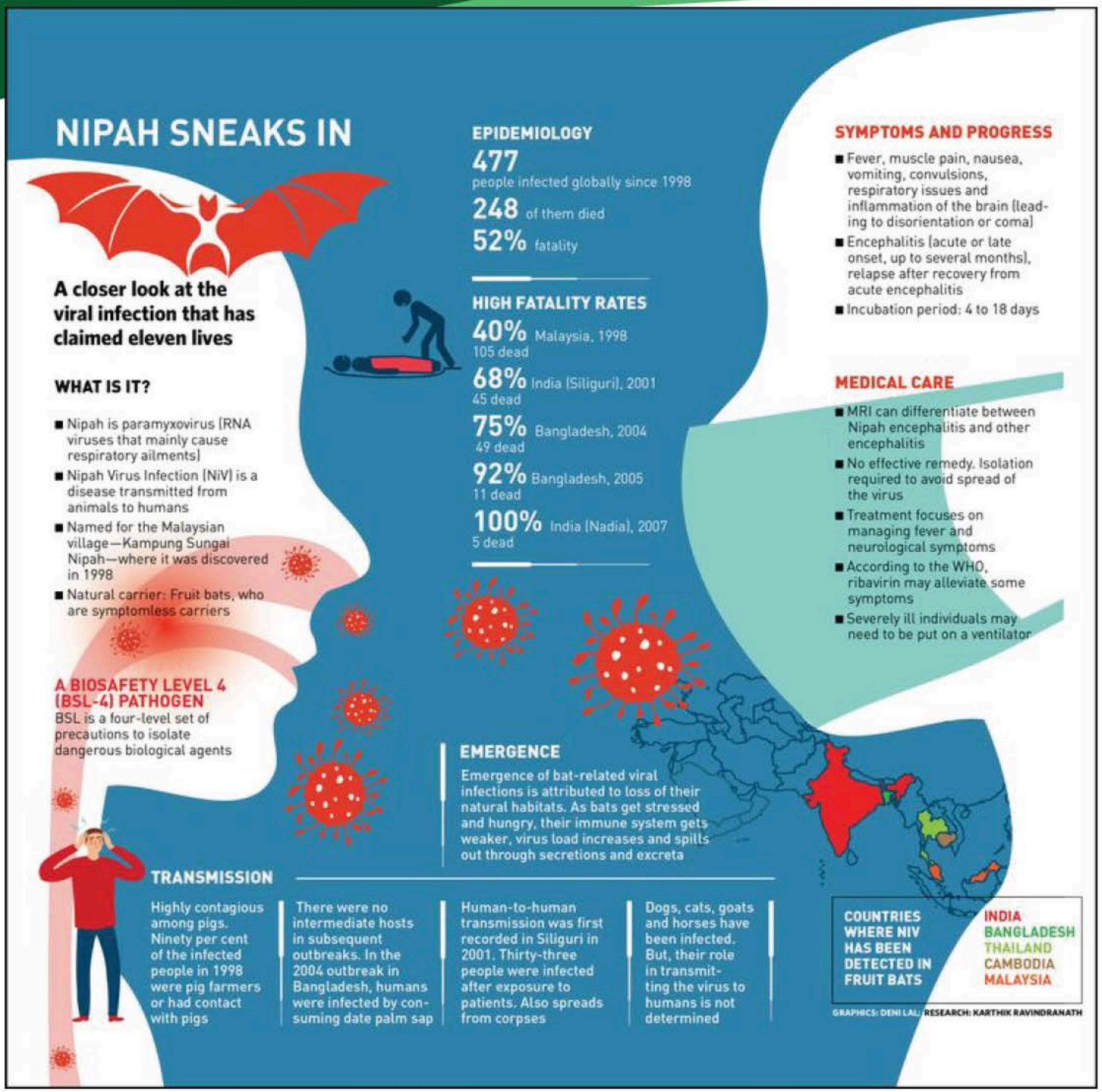
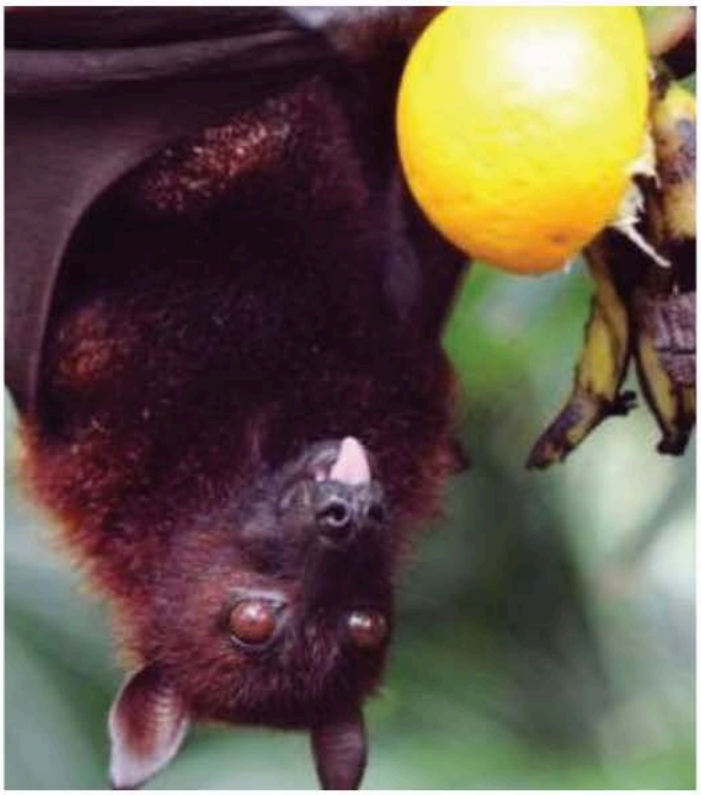


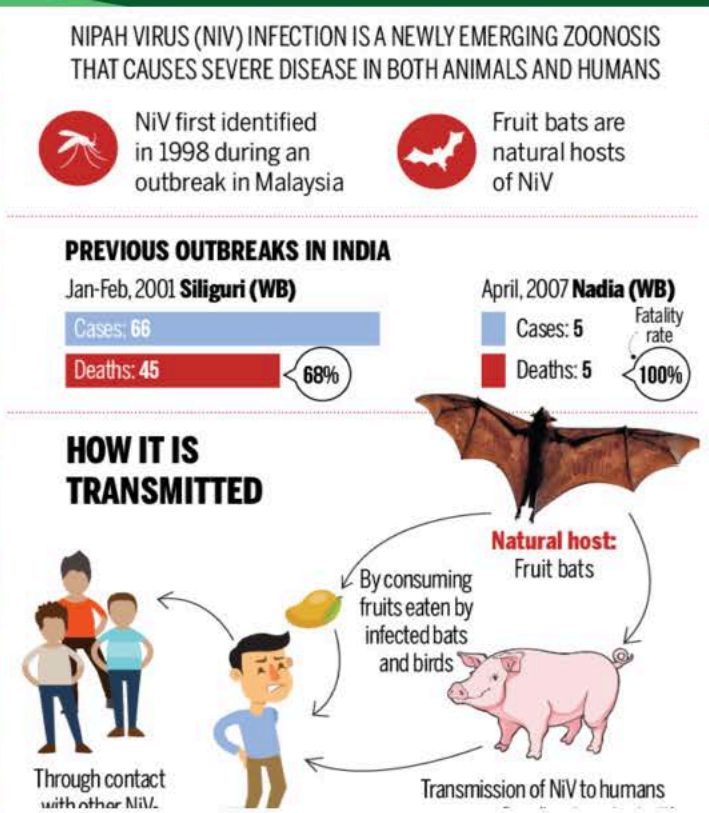
aches, myalgia (muscle pain), vomiting and sore throat. This can be followed by dizziness, drowsiness, altered consciousness, and neurological signs that indicate acute encephalitis. Some people can also experience atypical pneumonia and severe respiratory problems, including acute respiratory distress. Encephalitis and seizures occur in severe cases, progressing to coma within 24 to 48 hours.

The incubation period (interval from infection to the onset of symptoms) is believed to range from 4 to 14 days. However, an incubation period as long as 45 days has been reported.

Diagnosis: Initial signs and symptoms of NIPAH virus infection are nonspecific, and the diagnosis is often not suspected at the time of presentation. This can hinder accurate diagnosis and creates challenges in outbreak detection, effective and timely infection control measures, and outbreak response activities.

In addition, the quality, quantity, type, timing of clinical sample collection and the time needed





to transfer samples to the laboratory can affect the accuracy of laboratoryresults.

NIPAH virus infection can be diagnosed with clinical history during the acute and convalescent phase of the disease. The main tests used are real time polymerase chain reaction (RT-PCR) from bodily fluids and antibody detection via enzyme linked immune sorbent assay (ELISA).

Other tests used include polymerase chain reaction (PCR) assay, and virus isolation by cell culture.

Treatment: There are currently no drugs or vaccines specific for NIPAH virus infection although WHO has identified NIPAH as a priority disease for the WHO Research and Development Blueprint. Intensive supportive care is recommended to treat severe respiratory and neurologic complications.

Biosafety Issues Of NIPAH Virus: For those who have to work in the field or on farms where NIPAH infection is suspected, personal protection, such as masks, goggles, gloves, gowns, and boots, is advocated, together with hand washing and disinfection of equipment.

With its high virulence, animal-to-human and human-to-human spread, significant morbidity and mortality, and resultant fear and panic and tremendous economic losses caused, NiV fulfils some criteria to be considered a potential agent for bioterrorism. It is thus listed as a category C agent on a list of bioterrorism agents by the Centres for Disease Control and Prevention, and any handling has to be done in biosafety level (BSL) facilities.

Conclusion: NiV emerged as a new virus exactly 20 years ago, causing severe morbidity and mortality in both humans and animals and destroyed the pig-farming industry in Malaysia, and it continues to cause outbreaks in Bangladesh and India. As the reservoir host Pteropus bat is widespread, and NiV has been found in bats in various countries, the potential for outbreaks to occur in new regions remains significant.

The Rubella disease: A German measles

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Introduction: Rubella is an infectious disease. It is a common infection in many areas of the world. It was first described as a separate disease by German physicians in 1814 and named ' German measles '. In April 2015 the WHO declared the Americans free of rubella transmission. Each year about 100,000 cases of congenital rubella syndrome occur.
Causes: It was commonly caused by rubella virus.

Infection: Rubella is usually spread through the air via coughs of people who are infected. People are infectious during the week before and after the appearance of the rash. This disease often mild with half of people not realizing that they are infected. A rash may start around two weeks after exposure and last for three days. It usually starts on the face and spreads to the rest of the body. The rash is sometimes itchy and is not as bright as that of measles. Infection during early pregnancy may result in a child born with congenital rubella syndrome (CRS) or miscarriage. Problems are rare after the 20th week of pregnancy. Babies with CRS may spread the virus for more than a year. Only humans are infected, insects do not spread the disease.
Duration of this disease are three days.

Symptoms: Symptoms are usually rash, swollen lymph nodes, fever, sore throat, fatigue and feeling tired. The complications may include bleeding problems, testicular swelling and inflammation of nerves. Congenital rubella syndrome (CRS) or miscarriage. Some problems with CRS are eyes such as cataracts, ears such as deafness, heart and brain. In adults joint pain is common.
Diagnosis: Diagnosis is confirmed by finding the virus in the blood, throat or urine. Testing the blood for antibodies may also useful. Diagnosis during early pregnancy is also done for pregnant women.
Prevention: Rubella is preventable with the rubella vaccine with a single dose being more than 95% effective. Often it is given in combination with the measles rubella vaccine.

Measles - Rubella (MR) vaccination :
India, along with 10 other WHO south East Asia Region member countries, have resolved to eliminate measles and control rubella/ CRS by 2020. In this direction, Ministry of Health & Family Welfare has initiated MR vaccination campaign in the age group of 9 months to less than 15 years in a phased manner across the nation. The campaign aims to cover approximately 41 crore children. MR vaccine a part of routine immunization and given at 9-12months and 16-24 months of age of child. The first phase of measles - rubella vaccination campaign has been successfully completed during February 2017 in 5 states, namely, Tamilnadu, Karnataka, Goa, Lakshadweep and Puducherry. More than 3.3 crore children were vaccinated, reaching out to 97% of the intended age group. The campaign is carried out in schools, community centers and health facilities. The next round was taken up in 8 states / UTS during August 2017, cover 3.4 crore children. Since, the launch in 2017, the MRV campaign has covered nearly 20 crore children in 30 states. Every year in India nearly 2.7 million children get measles. Every year over 40,000 children are born with such birth defects caused by congenital rubella syndrome (CRS). According to the World Health Organisation (WHO), a single dose of rubella vaccine gives "more than 95% long lasting immunity". But immunization coverage has been reported to be low. Private practitioners in India have been giving measles rubella (MR) vaccine to the children for many years. The Indian Academy of Paediatrics (IAP) endorses the strategy of measles rubella (MR) vaccination. The campaign aims to rapidly build up immunity for both measles and rubella diseases in the community. Therefore, all the children should receive MR vaccine during the campaign.

KYASANUR FOREST DISEASE (KFD)

Sudipa Chakraborty (4th year B.Sc. Nursing)

Kyasanur forest disease (KFD) is a febrile disease associated with haemorrhages caused by an arbovirus flavivirus. The name of causative agent is Kyasanur Forest disease virus (KFDV), a member of the virus family Flaviviridae. KFDV was identified in 1957 when it was isolated from a sick or dead monkey from the Kyasanur Forest (Shimoga district) in Karnataka State in South India. Local inhabitants called the disease 'monkey disease'. Since then, 400 to 500 human cases per year have been reported. Hard ticks (Hemaphysalis spinigera) are the reservoir of KFD virus and once infected, remain so for life.

TRANSMISSION- Transmission to humans may occur after a tick bite or contact with an infected animal. No person-to-person transmission has been described.
The disease as of now is stated to be transmitted through monkeys. Large animals such as goats, cows, and sheep may become infected with KFD but play a limited role in the transmission of the disease. These animals provide the blood meals for ticks and it is possible for infected animals with viremia to infect other ticks, but transmission of KFDV to humans from these larger animals is extremely rare.

SYMPTOMS- After an incubation period of 3-8 days, the symptoms of KFD begin suddenly with chills, fever, and headache. Severe muscle pain with vomiting, gastrointestinal symptoms and bleeding problems may occur 3-4 days after initial symptom onset. Patients may experience abnormally low blood pressure, and low platelet, red blood cell, and white blood cell counts.
After 1-2 weeks of symptoms, some patients recover without complication. However, a second wave of symptoms at the beginning of the third week may occur. These symptoms include fever and signs of neurological manifestations, such as severe headache, mental disturbances, tremors, and vision deficits.

CONTROL & PREVENTION- Since KFD is a tick-borne disease, control of ticks should be undertaken. For control of ticks in forests, application can be made by aircraft-mounted equipment to dispense carbyle, fenthoin, naled or propoxur at 2.24kg per hectare. The spraying must be carried out in 'hot spots' i.e., in areas where monkey deaths have been reported and there should be restriction of cattle movements to reduce the vector population. The population at risk should be immunized with killed KFD vaccine. The personal protection includes adequate clothing and using insect repellents such as dimethyl phthalate (DMP, DEET). They should examine their bodies at the end of each day for ticks and remove them promptly.

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Pestalotiopsis Microspora: The Mushroom That Eats Plastic

Puja Das (BMIT 3rd year)

It looks like George Carlin is right again, even more than ten years after his death. In his famous "Saving the Planet" standup comedy act, he takes the piss out of political environmentalists with his hilarious yet eerily prescient perspective on plastic:

"The earth doesn't share our prejudice toward plastic. Plastic came out of the earth. The earth probably sees plastic as just another one of its children. Could be the only reason the earth allowed us to be spawned from it in the first place. It wanted plastic for itself…"

It might seem absurd, until the 2012 discovery by students at Yale University, who found that a rare species of mushroom from the Amazon rainforest is capable of subsisting on plastic alone. More precisely, Pestalotiopsis microspora consumes polyurethane, the key ingredient in plastic products, and converts it to organic matter.

Further, Pestalotiopsis microspora can live without oxygen, which suggests enormous potential for feeding on, and thus cleaning up, landfills.

So once again, nature holds the answer. This approach to dealing with plastic overload emerges just as the EU has voted to ban all single-use plastics by 2021. However, that legislation may have more to do with industry politics than with cleaning up the planet. It does nothing to address, for example, the garbage patch twice the size of Texas that's currently floating in the Pacific Ocean.

But for those who wonder if feeding on all this plastic this might be creating another monster – overgrown mushrooms instead of trash piles — nature proves to be a problem-solver once again: some plastic-eating species can be eaten themselves. That's right — in a fascinating study led by Katharina Unger of Utrecht University, it turns out there are actually several species of mushrooms that will eat plastic, and some of them are common, such as the oyster mushroom, which is also edible.

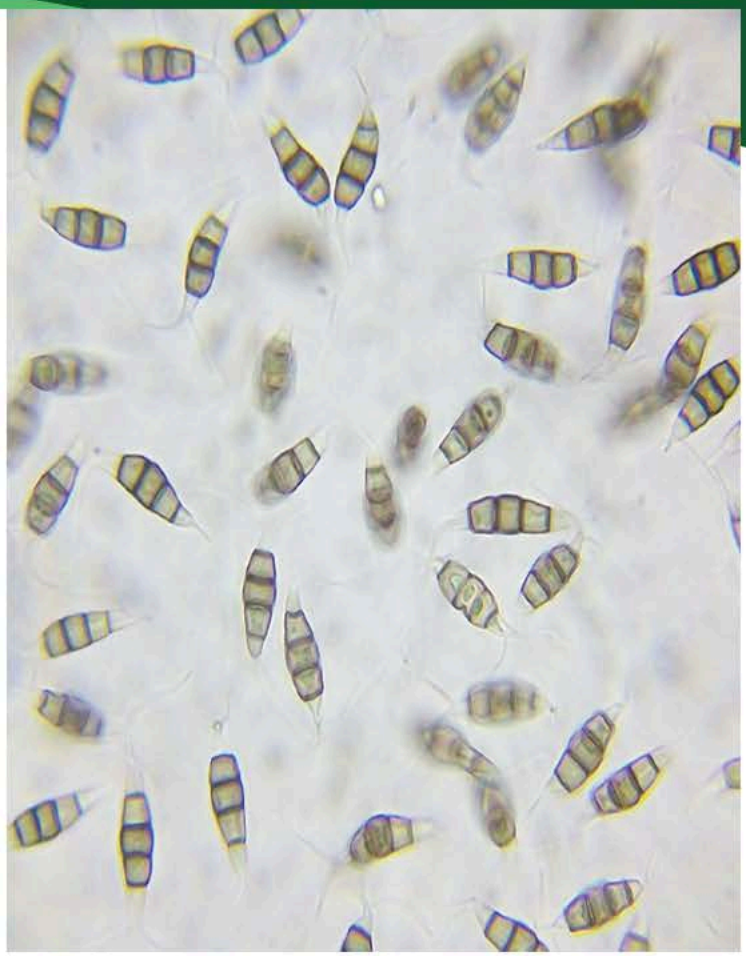
However, even though there is no plastic left in the finished product, and according to Unger, they taste "sweet with the smell of anise or licorice," convincing the general public to eat these mushrooms might be a hard sell. More studies are needed to determine the safety of doing so. If found to be safe, then this process holds potential to solve another problem – world hunger. With a reported 100 million people around the world who go hungry every night, having a food source that grows by converting trash to treasure may be worth more than its weight in gold.

The list of benefits continues in a report from scientists at the Kew Gardens in London. Their first ever State of the World's Fungi 2018 confirms that not only can mushrooms help break down plastic, their finished products can be used to create furniture and building materials ("mushroom bricks"). Additional benefits include mushrooms' abilities to remove pollutants from soil and to enable the conversion of waste into biofuels. These amazing abilities of mushrooms have given scientists as well as leaders in architecture and design a way to view to the future with a hopeful eye.

Tom Prescott, Senior Researcher at Kew Gardens, sums it up: "The State of the World's Fungi report has been a fascinating look into the fungal kingdom, revealing how little we know and the huge potential for fungi in areas as diverse as biofuels, pharmaceuticals and novel materials […] Fungi are being considered as a potential sustainable source for building materials, with companies in the US researching the possibility of expanding this market."

All in all, the discovery holds exciting promise: in controlled conditions, it takes just a few weeks for the mycelium to start breaking down plastic, and in a few months' time, the plastic is completely broken down, and all that's left is a white puffy mushroom. Even if not eaten or used for anything else, the mushroom could be composted and turned in to soil at a much faster rate than that of plastic, which is estimated to take 400 years to decompose on its own.

Since mycelium are natural decomposers, for instance helping to break down dead trees and return them to the soil, it's a logical next step to turn them toward breaking down plastic, even though plastic is not an organic material. Mushrooms prove themselves to be capable of magic once again



Pestalotiopsis Microspora

FLOOD IN ASSAM

Chandra Debnath (4th yr. B.Sc. Nursing)

Assam is reeling under devastating floods. More than 30 lakh affected in 25 district. Hundreds of villages are under water and thousands of families are forced to take shelter on roads, highways and schools. As Assam is prone area for flood. Every year flood is seen due to heavy rain, which leads to loss in human lives and the economy takes a big hit.

WHY IS ASSAM FLOOD PRONE?

There are both natural and manmade causes for annual deluge.

Natural cause-

- Assam falls under a metrological zone that receives excess monsoon rains.
- Brahmaputra carries a lot of water and sediments, which is another natural reason for floods.
- Assam and some other parts of the north eastern region are prone to frequent, which causes landslides and send in a lot of debris in the rivers, causing the river bed to rise.
- Assam has also faced bank erosion around the Brahmaputra and Barak rivers as well as their tributaries which causes flood.

Manmade-

- Dams- Among the manmade reasons, the key cause of floods in Assam region is releasing of water from dams situated uphill. Unregulated release of water floods the Assam plains leaving thousands of people homeless every year.
- Encroachment- Encroachment is a forest lands and water bodies is another main reason that causes flood in the state.

WAY TO THE RID OF THIS PROBLEM:

- Early warning system- There should be the reports that around the Assam- Bhutan border, villagers from whatsapp groups to warn people of rising water levels.
- Wet lands and local water bodies should be revived so that the natural drainage system can act as a basin for water
- Embankments should be regularly checked for breaches and put in place for maintenance.

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Management of Animal Bites

Pranjal Kanti Shil (4th year B.Sc. Nursing)

Simple First Aid to Perform

Worldwide, up to 5 million people are bitten by snakes every year, the majority of which occurring in Africa & South-East Asia. 9,191 people died of animal bites & stings (from snakes & scorpion) across India in 2017-18.

Besides, about 15 million people are bitten by animals, mostly dogs, cats & monkeys (causing rabies) every year. An estimated45% of all deaths from rabies occur in the South-East Asia countries. About 36% of the world's death cases from the disease were found in India.

Risks from animal bites:

Rabies-Rabies is a potentially fatal condition. It is caused by bite, scratch or rarely by licks of rabid animals. Although it is a preventable disease there is no effective treatment available & once the symptoms start death is obvious & inevitable. The clinical features include shortness of breath, tremors, spasms, hyperactivity, hydrophobia (fear of water), aerophobia (fear of airflow)

Management:

- Clean the wound for at least 10 minutes with soap & water to wash out the virus.
- Apply no ointment or cream on the wound
- Seek medical treatment as soon as possible on the day bitten.
- Take all the Anti-rabies vaccine (ARV) according to the schedule.

Poisoning – Poisoning may occur due to snake bites and stings such as scorpion. In the site of snake bite, usually 2 dots are seen resembling the two venomous teeth's bite of snake.
Venom from snakebite causes pain, swelling, redness in common. Apart from this there may other symptoms appear depending upon the type of venom these are: vomiting, burning sensation, fever, vertigo, rapid heartbeats, visual disturbance, weakness, convulsions, fainting, paralysis etc. Delay in treatment may result in Death.

On the other hand Stings of scorpion are usually harmless but sometimes have serious clinical sequelae, including myocardial infarction, acute pulmonary edema, cardiogenic shock, & even death. The scorpion bite is often called "A Sting to the Heart". Symptoms are pain, rapid heartbeats, rise in BP, muscle twitches, breathing difficulty.

Prevention & Management:

• Avoid tall grassy areas, use torchlight at night
• Wear protective shoes/boats
• Keep storage areas clear of rodents
• Raise beds above floor level & tuck mosquito nets securely under the sleeping mats
• Check the shoes for presence of any harmful organism before wearing.

If a bite occurs–

• Do not wash the snakebite area. The scorpion bite area should be washed with soap and water.

• Remove any constricting items, jewellery or rings as the affected site may swell.
• Keep the victim calm as panic may increase the heart rate which will circulate the venom faster in the body.
• Apply compression bandage firmly from the above of the affected area to the distal part of the extremity.
• Ice should not be applied in the affected area.
• Do not suck the wound with mouth. A suction device is used to draw the venom out of the wound.
• Reach to the emergency department of a hospital soon.

Myth: Tying up the affected extremity tight (Tourniquet) will prevent the spread of poison/venom
Truth: Tourniquet will affect total blood circulation resulting in necrosis & gangrene

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WATER CONSERVATION

Sayantika Datta (4th year B.Sc. Nursing)

"A drop of water is worth more than a sack of gold to a thirsty man"

Water is the precious gift of god on the earth. Life exists on the earth because of the availability of water. 'Save water' is an awareness campaign to promote the water saving techniques among people as well as make them understand the importance of water in order to make the balance of water of water on earth.

Why do we need to conserve water?

- We must conserve our water so that it will be available to people for years to come
- Today the earth is in the need of water conservation as the quantity of water is going down day by day
- To ensure availability for future generations
- Water pumping, delivery and waste water treatment facilities consume of significant amount of energy.
- There are various reasons for declined water sources and that are water pollution, waste of water in daily living, illiteracy which effects the people most.

Different ways to conserve water

Domestic conservation:

- shorter of shower by a minute or two can save up to 150 gallons per month
- Teach children to turn off faucets tightly after each use.
- Turning off the tap while brushing teeth can save 3 gallons of water for each time.
- Use bucket of water to clear car instead of a hose.
- Use grey water for washing machines to water vegetation.

Industrial conservation

- Reuse the cooling water for irrigation or other purpose.
- Recycled water should be used for floor washing and other purpose.
- Use improved irrigation techniques.
- Check for any leaks and eliminate it.

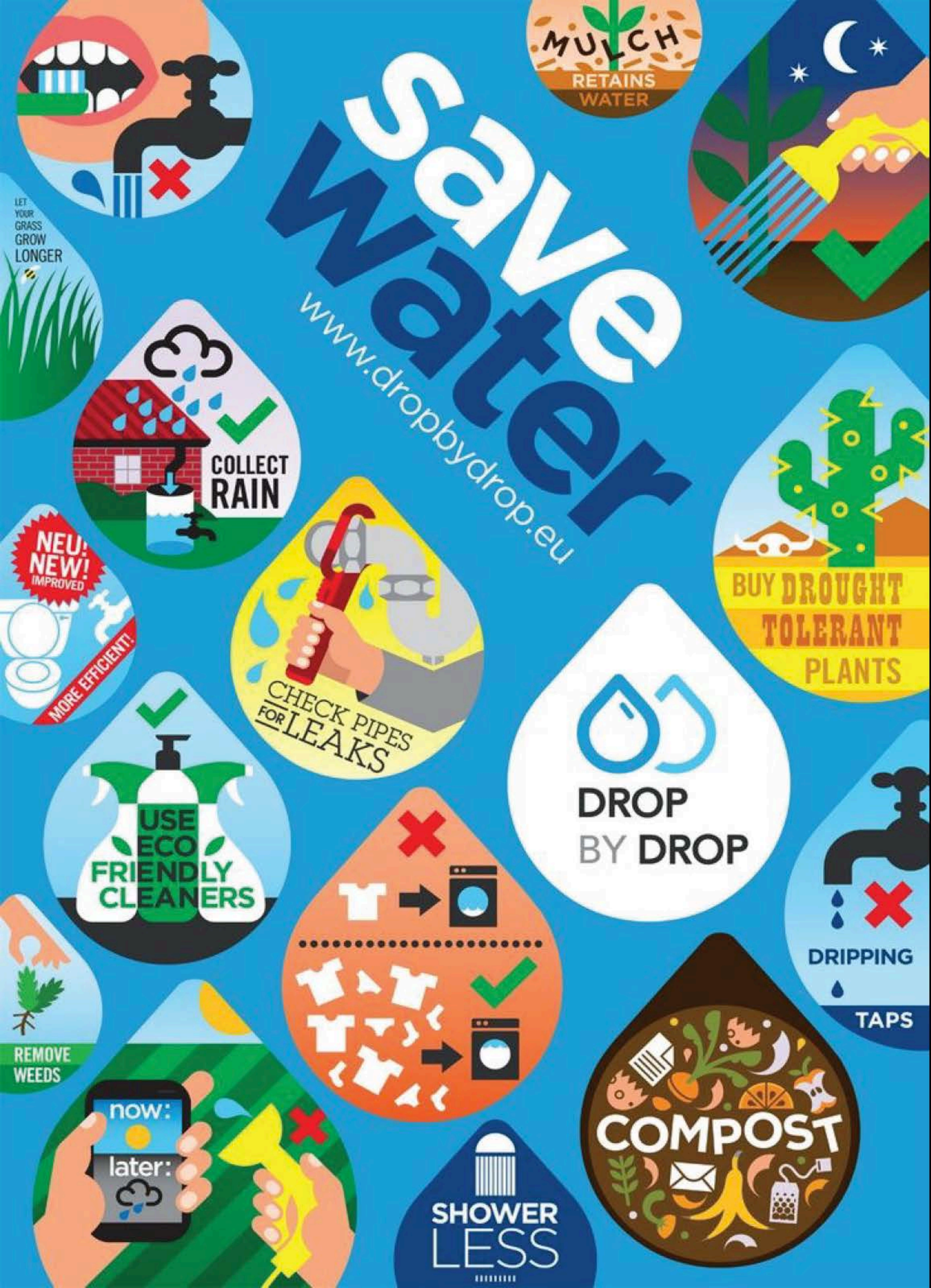
Rain water harvesting

It is the system of collect and concentration of rain water and its run off and use for irrigation of annual crops pastures and trees, domestic and livestock consumption and ground water recharge. It can be done on various ways.

- Directly from roof tops and stored in tanks.
- Monsoon run off and water in swollen streams during the monsoon and storing it in underground tanks.
- Water from flooded rivers can be stored in small ponds.
- Collection and transfer of rainwater into percolation tanks so as to facilitate discharge in to ground.
- A 'catchment' in any large surface that can capture or carry water to where it can be used immediately or stored.

Advantages of water conservation:

- Rivers and lakes will remain clean
- It saves money and energy
- It protects drinking water resources
- Water conservation reduces the need for costly water supply and new waste water treatment facilities.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DROP BY DROP
DRIPPING TAPS
REMOVE WEEDS
now:
later:
SHOWER LESS
COMPOST

The Chicken or the Egg?

Ananya Bhattacharya (BMLT 3rd Year)

Was it the chicken or the egg that came first? It's such a tricky question because we need a chicken to lay an egg, but chickens come from eggs.
This is a riddle we can unscramble with the tools of science.
Let's get cracking.

The first eggs

Eggs are found throughout the animal kingdom. An egg is simply the membrane-bound vessel inside which an embryo can grow and develop until it can survive on its own.

But let's focus on the type of bird's egg scientists recognise today. These first came on the scene with the evolution of the first amniotes many millions of years ago. Prior to their arrival, most animals relied on water for reproduction, laying their eggs in ponds and other moist environments so that the eggs didn't dry out.
At some point, a different kind of egg began to evolve, which had three extra membranes inside: the chorion, amnion and allantois. Each membrane has a slightly different function but the addition of all these extra layers provided a conveniently enclosed, all-in-one life support system: an embryo can take in stored nutrients, store excess waste products and respire (breathe) without the need of an external aquatic environment. The extra fluids encased in the amnion, plus the tough outer shell, provide

Fig:-Eggs of all shapes and sizes exist throughout the animal kingdom

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Amniotic eggs were a big deal. They opened up a whole new world of opportunities for land-based egg-laying locations, and the extra membranes paved the way for bigger (and mostly better) eggs.
Scientists are still not sure of exactly when this happened, largely because eggy membranes don't make very good fossils, leaving scientists with no clear record of when, or how, amniotic eggs developed. Their best guess is that the last common ancestor of both tetrapod (four-limbed animals with a backbone) and the amniotes (four-limbed animals with a backbone that lay eggs with all those extra

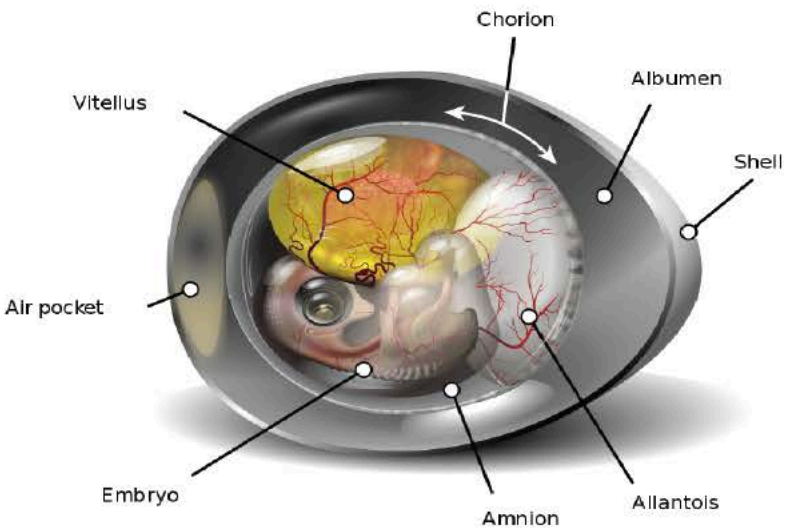


Diagram of a chicken egg in its 9th day—an example of an amniotic egg.

layers) lived around 370-340 million years ago, though some sources put the first amniotes species as living closer to 312 million years ago. Today's mammals, reptiles and birds are all descendants of the first amniotes.

The first chickens

The very first chicken in existence would have been the result of a genetic mutation (or mutations) taking place in a zygote produced by two almost-chickens (or proto-chickens). This means two proto-chickens mated, combining their DNA together to form the very first cell of the very first chicken. Somewhere along the line, genetic mutations occurred in that very first cell, and those mutations copied themselves into every other body cell as the chicken embryo grew. The result? The first true chicken.

So who were the likely parents of this first One True Chicken? The red jungle fowl (Gallus gallus) is native to a range of south-eastern Asian countries including India, southern China, Indonesia, Malaysia, Singapore and Indonesia. It's thought that the red jungle fowl was domesticated by humans in Asia and went on to be spread around the world as the less-aggressive and prolific egg-layers that we know and love today (Gallus gallus domesticus).

Archaeological evidence suggests that the red jungle fowl was first domesticated some 10,000 years ago, although DNA analysis and mathematical simulations suggest that the domestic chicken actually diverged from jungle fowl much earlier (an estimated 58,000 years ago). There's also evidence of suggest that the domestic chicken's origins may be slightly more complicated: the genes for the yellow colour seen on the legs of many chooks could have come from the grey jungle fowl (Gallus sonneratii), not the red, pointing to some hybridisation between species somewhere along the way.

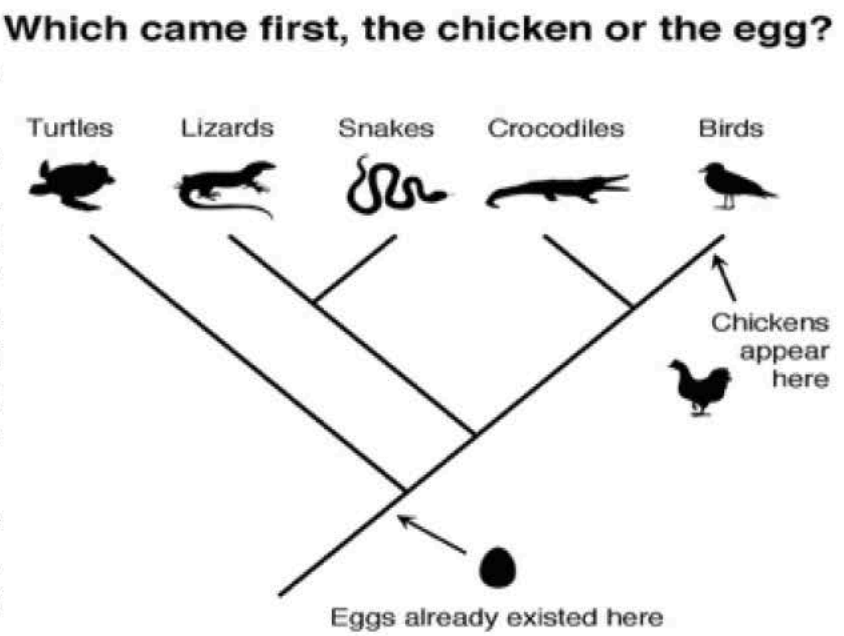
Back to the original question: with amniotic eggs showing up roughly 340 million or so years ago, and the first chickens evolving at around 58 thousand years ago at the earliest, it's a safe bet to say the egg came first.

The first chicken eggs

But wait—there are some scientists who claimed that, the chicken came first

This claim came from some researchers studying how chicken eggshells form. Eggshell is mostly made from calcium carbonate ($CaCO_3$). Hens get their supply of calcium for eggshell production from dietary sources (calcium-rich seafood shells, such as oyster or prawn shells, are a popular snack for backyard hens for this reason).

To form a shell, the calcium needs to be deposited in the form of $CaCO_3$ crystals, and hens rely on specific proteins that enable this process. One such protein, called ovocleidin-17 (or OC-17 for short), is only found in the ovary of a chicken, leading to the suggestion that the chicken must have come before the chicken egg, since without OC-17, there can be no chicken egg formation. (Interestingly, it seems that this protein is responsible for speeding up the rate of eggshell formation, enabling hens to build an egg from scratch and lay it within a 24-hour timeframe.)



Eggs were around way before chickens even existed.

Domestic chickens are extremely efficient egg layers, capable of producing a fresh egg roughly every 24 hours.

At the end of the day, the question is something of a false dichotomy. Eggs certainly came before chickens, but chicken eggs did not—we can't have one without the other. However, if we absolutely had to pick a side, based on the evolutionary evidence, we're on Team Egg.

"CHILD LABOUR"

ANANYA DAS, SANDIPA DEB AND ANIRBAN PAL (BMRT 2nd YEAR)

INTRODUCTION:

"The term 'child labour' is often defined as work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. It refers to work that: - is mentally, physically, socially or morally dangerous and harmful to children. The main reason for child labour in India is poverty. Most of the country's population suffers from poverty. Due to poverty, parents cannot afford the studies of their children and make them earn their wages from a tender age. They send their small children to work in factories, homes and shops. Of these, 8 million children are working in the "unconditional worst forms" of child labour, which include armed conflict, forced and bonded labour, prostitution, pornography, drug trafficking, and other illicit activities. They work in fields, in factories, down mines, as servants or maids, or selling goods in the street or at markets. Girls are more likely than boys to do domestic work, such as cleaning, making food and serving.

GLOBAL SCENERIO OF CHILD LABOUR:

Child labour is hard to define and harder to measure. However, according to UNICEF more than one in ten of the world's children are involved, although in some countries it's as high as five in ten. UNICEF's definition of a child labourer measures children who have been economically active for an hour or more each week, or done over 28 hours of 'household chores', and there are different measures for older children. It's estimated that 168 million children are involved worldwide. Ninety-eight million work in agriculture, with most of the rest (54 million) working in the service industry. Again, there's a big difference between those young people who help out on their family's farm a bit at the weekends, so they can learn skills to grow food, and those who work day in day out on plantations, on the streets Across the world, tens of millions of children do extremely hazardous work in harmful conditions, putting their health, education, personal and social development, and even their lives at risk. These are some of the circumstances they face:

- Full time work from an early age
- Dangerous workplaces

- Using hazardous machinery or toxic chemicals
- Long working hours
- Subjection to psychological, verbal, physical or sexual abuse
- No access to education.

This short animation tells the story of Anima, a 14-year-old from Mali, who left home to be trafficked to work on cocoa farms in Côte d'Ivoire. The widespread use of children in cocoa production is controversial, not only for the concerns about child labour and exploitation, but also because, as of 2015, up to 19,000 children working in Côte d'Ivoire, the world's biggest producer of cocoa, may have been victims of trafficking or slavery. Attention on this subject has focused on West Africa, which collectively supplies 69% of the world's cocoa, Côte d'Ivoire in particular, supplying 35%. Thirty percent of children under age 15 in sub-Saharan Africa are child labours, mostly in agricultural activities that includes cocoa farming. It is estimated that more than 1.8 million children in West Africa are involved in growing cocoa. Major chocolate producers, such as Nestlé, buy cocoa at commodities exchanges where Ivorian cocoa is mixed with other cocoa. In 2013–2014, an estimated 1.4 million children aged 5 years old to 11 years old worked in agriculture in cocoa-growing areas, approximately 800,000 of them are engaged in hazardous work, including working with sharp tools and agricultural chemicals and carrying heavy loads.

EFFECT OF CHILD LABOUR:

The difficulty of tasks and harsh working conditions create a number of problems such as premature ageing, malnutrition, depression, drug dependency etc. From disadvantaged backgrounds, minority groups, or abducted from their families, these children have no protection.

WORST FORM OF CHILD LABOUR:

Slavery and similar issues such as the trafficking of children, debt bondage, serfdom, children in armed conflict, the sexual exploitation of children, and the involvement of children in illicit activities are the worst form of child labour:

Slavery is where one person is owned by and made to work for another person without having any say over what happens to them. Slaves are held against their will from the time of their capture, purchase, or birth, and are not allowed to leave or to refuse to work.

Global estimates results at a glance

			Children in employment		Of which: Children in child labour		Of which: Children in hazardous work	
			2012	2016	2012	2016	2012	2016
World (5–17 years)		Number (000s)	264 427	218 019	167 956	151 622	85 344	72 525
		Prevalence (%)	16.7	13.8	10.6	9.6	5.4	4.6
Age range	5–14 years	Number (000s)	144 066	130 364	120 453	114 472	37 841	35 376
		Prevalence (%)	11.8	10.6	9.9	9.3	3.1	2.9
	15–17 years	Number (000s)	120 362	87 655	47 503	37 149	47 503	37 149
		Prevalence (%)	33.0	24.9	13.0	10.5	13.0	10.5
Sex (5–17 years)	Male	Number (000s)	148 327	123 190	99 766	87 521	55 048	44 774
		Prevalence (%)	18.1	15.0	12.2	10.7	6.7	5.5
	Female	Number (000s)	116 100	94 829	68 190	64 100	30 296	27 751
		Prevalence (%)	15.2	12.4	8.9	8.4	4.0	3.6
Region (5–17 years)	Africa	Number (000s)	--	99 417	--	72 113	--	31 538
		Prevalence (%)	--	27.1	--	19.6	--	8.6
	Americas	Number (000s)	--	17 725	--	10 735	--	6 553
		Prevalence (%)	--	8.8	--	5.3	--	3.2
	Asia and the Pacific	Number (000s)	129 358	90 236	77 723	62 077	33 860	28 469
		Prevalence (%)	15.5	10.7	9.3	7.4	4.1	3.4
	Europe and Central Asia	Number (000s)	--	8 773	--	5 534	--	5 349
		Prevalence (%)	--	6.5	--	4.1	--	4.0
	Arab States	Number (000s)	--	1 868	--	1 162	--	616
		Prevalence (%)	--	4.6	--	2.9	--	1.5

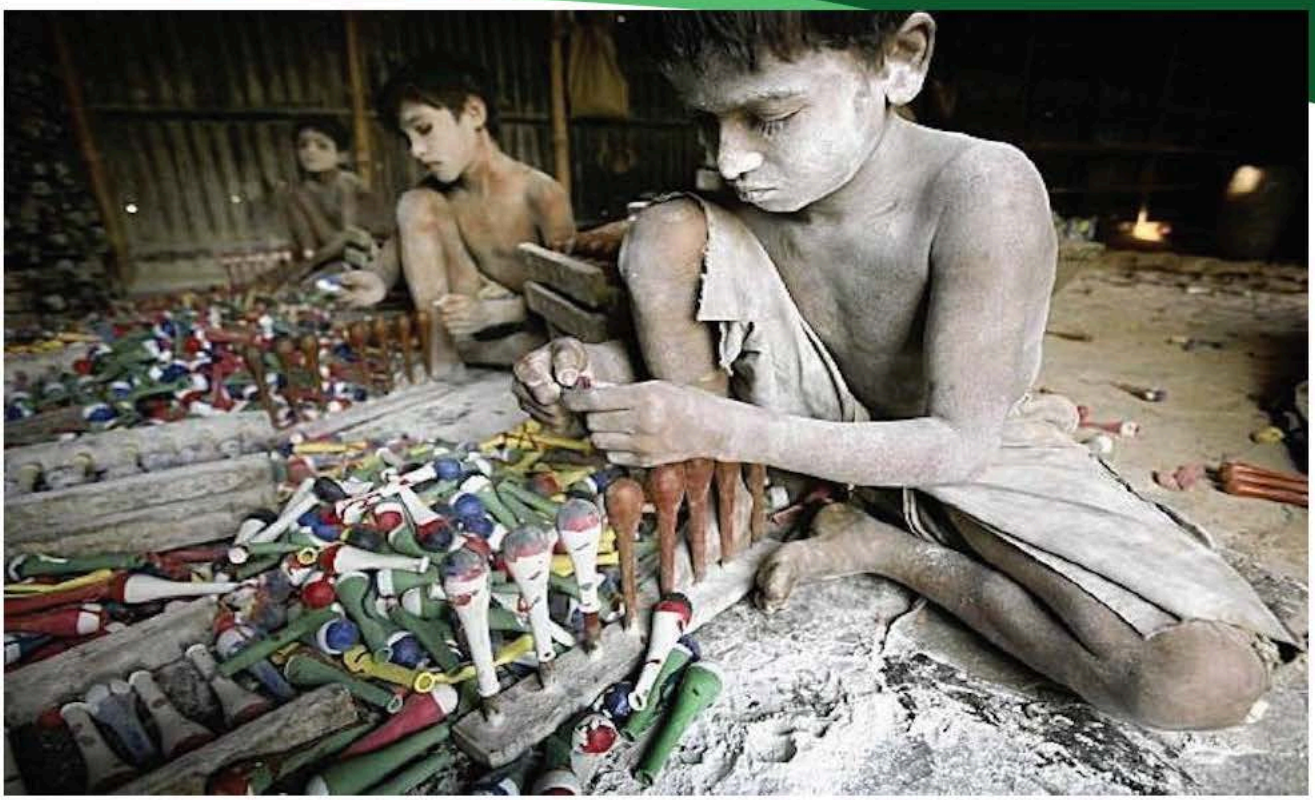
Child trafficking is the illegal trading (buying, selling and movement) of children for labour or sexual exploitation. Children are trafficked for many reasons, including forced labour, prostitution and recruitment as child soldiers and beggars refuse to work.

Debt bondage is forced labour, where work is exchanged to pay off loans that people cannot pay off with money or goods. For example, a poor family may hand over their child to someone to pay off their debt, and that child will have to work for years until the debt is cleared.

Serfdom is when a person is forced to live and work on land belonging to another person, often with little or no pay.

Children in armed conflict are forced to fight or to work as cooks, porters and messengers. These children are abused and exploited, often being forced to kill or maim other human beings.

Sexual exploitation is the mistreating, abusing and/or taking advantage of someone for personal gain and profit, by involving them in prostitution or commercial sexual activity. Prostitution is the exchange of sexual activities for money.



Producing and trafficking drugs is an illicit activity that often involves children. Trafficking is illegal trading (buying or selling). Children might do this against their will or with the belief that this will give them status and money. Children who produce or traffic drugs are at great risk of abuse and many also become addicted to drugs at a very young age.

PREVENTION OF CHILD LABOUR:

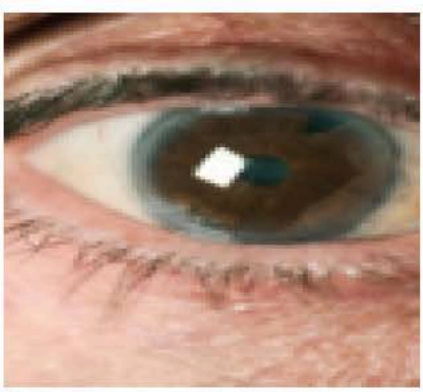
- Educate yourself.
- Contact retail stores, manufacturers, and importers.
- Buy fair trade and sweatshop-free products whenever possible.
- Grow more of your own food.
- Contact local, regional, and national legislators.
- Contact government leaders.
- Educate others.

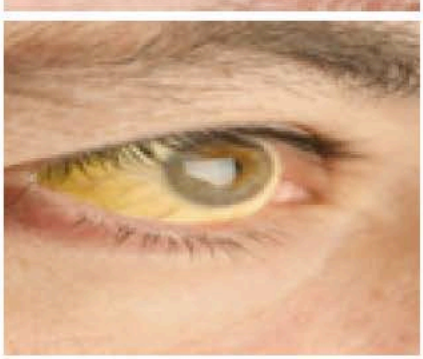
WHAT DO YOUR EYES SAY ABOUT YOUR HEALTH?

KEYA DAS (BOPTM 2nd Year)

Have you ever wondered why your eye care provider spends so much time carefully examining your eyes? Although they are looking for diseases or conditions that can affect your vision during eye exam, He or she is also searching for signs that may indicate that you have a general health problem or not because "eyes aren't just the window to your soul –they also offer a glimpse into your health".These diseases often cause symptoms that can be seen in your eyes.

Diabetes, when your blood sugar is high for a long period of time, the small blood vessels in your retina may begin to leak, causing a condition called diabetic retinopathy. The retina lines the back of your eye and sends light signals to the brain, where they're interpreted as images. Whens your vessels leak blood or fluid, your vision can become blurred and you may lose central vision or the ability to see colours. If diabetic retinopathy progresses, new blood vessels form in the retina, worsening vision problem. Cataracts may also appear at a younger age and progress more rapidly if you have diabetes.





If you have notice that a white ring around the edge of your corners then it may having high cholesterol. High cholesterol occurs when a fatty substances called plaque narrows your arteries, increasing your risk for heart disease and heart attacks and that white ring is common in older people, can be a sign of cholesterol problem if you are under 40.

Liver damage, when eyes or skin becomes yellow can be a sign of a jaundice, a condition that occurs when your liver produces too much bilirubin in response to inflammation or damage. Damage can occur due to viruses, autoimmune disorders, genetic diseases or alcohol abuse.

Sickle cell diseases, sickle-shaped blood cells block vessels, causing severe pain, anaemia and fatigue if you have sickle cell diseases. The blood vessels in the eyes can also be affected by the diseases. Common eye symptoms of sickle cell diseases include eye pain and blurry vision, floaters and jaundice. Blockage of the blood vessels in the retina may lead to a haemorrhage of the retina or vitreous, the clear gel that gives its shape.

Myasthenia Gravis, Drooping eyelids are the first symptom of myasthenia gravis for 50 percent of people who develop the autoimmune disorder, the disorder attacks and weakness of the muscles in your body under control, such as those in your arms and legs. If you have myasthenia gravis, you may find it hard to walk or hold your head upright. The condition can also affect your ability to chew, speak and breathe.

If you have heart disease it will show in your eyes as the blood vessels in other parts of your body. Minor changes to the vessels in your retina, such as swelling or narrowing, or swelling of the base of the optic nerve, may mean that you are at risk of developing heart disease. Luckily, once you know that you have risk factors for heart disease, you can make diet and lifestyle changes to reduce your risk.

Stress can manifest in many ways, one of which is an eye twitch. It's more annoying than concerning, but it can be a sign you need to get more rest and manage your stress levels a bit more. If you notice that your eyes are puffy and red, don't assume you have an infection. It might just be a sign that you are tired. In addition to twitching, lack of sleep can make the eyes more irritated and red.

Overall we can say that, eyes are one of the most important sense organ. 80% of what we perceive comes through our sense of sight. Our eye gives many sign and symptoms of our health. So we should care our eyes because eyes are the only sense organ that tells most of things about our health.

Blind people can also see the World

Dahlia Biswas (BOPTM 3rd Year)
Sonalee Gope (BOPTM 3rd Year)

Vision is the power which gives a direction to our life to make our goals and dreams a reality. Life without vision is a life without destiny.

But now recent research has revealed that, at least in some cases, even the totally blind might be able to perceive light.

'Argus retinal prosthesis' or 'Bionic eye' let's blind man 'see' again. Bionic Eye Technologies is developing an implantation device to restore functional vision for individuals with certain degenerative forms of blindness.

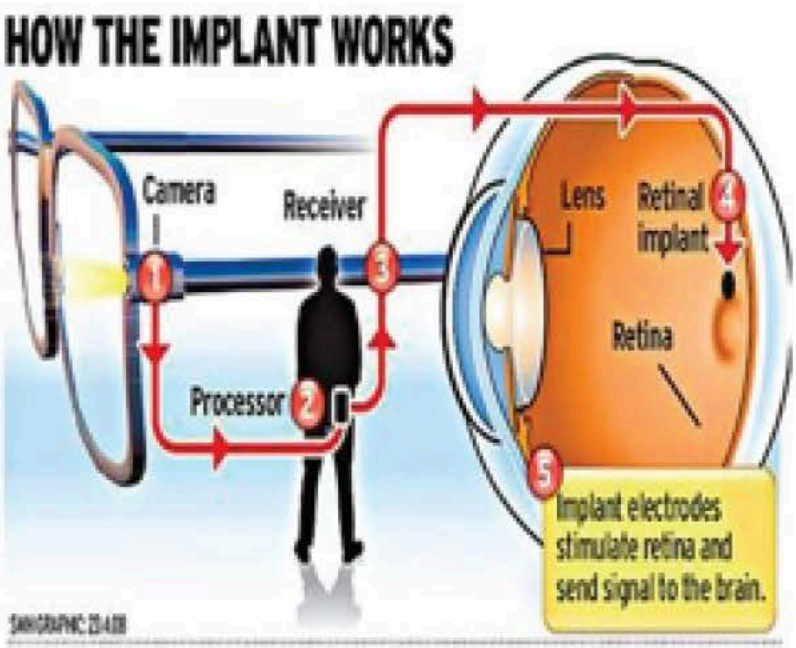
The Argus II Retinal Prosthesis system is the first FDA-approved implanted electronic device to re-establish some functional vision in blind patients. The innovation was co-invented and co-developed by USC inventor Dr. Mark Humayun.

The Bionic Vision system consists of a camera, attached to a pair of glasses, which transmits high-frequency radio signals to a microchip which is surgically implanted in on the surface of person's retina and tacked into place. The implant consists of 60 electrodes, each 200 microns in diameter. Electrodes on the implanted chip convert these signals into electrical impulses to stimulate cells in the retina that connect to the optic nerve. The wearable headset has Wi-Fi and HDMI capabilities to stream digital content and it can send picture videos. Each person who wears the glasses are able to control colour, contrast and magnification.

The Argus II received approval for commercial use in the European Union in March 2011. In February 2013, the FDA approved the Argus II under a humanitarian device exemption, authorizing its use for up to 4000 people in the US per year.

The Argus II was initially available at a limited number of clinics in France, Germany, Italy, the Netherlands, the United Kingdom and Saudi Arabia.

It is a perfect cure for the patients suffering from retinitis pigmentosa and age related macular degeneration. The present generation bionic eye is quite durable and is expected to last from 10 to 20 years. Also, the surgical methods are easier which lasts one and half hours. The component of chip size is very small so can be easily placed. This also leads to the reduced stress on the retina.



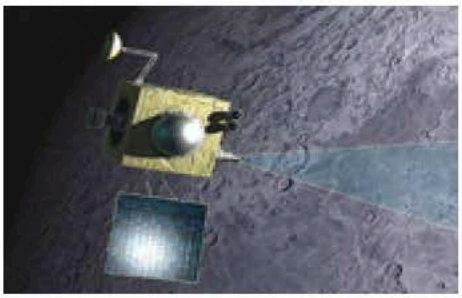
India and Space

Pijush Kanti Sinha (BOPTM 3rd Year)

The space agency of India is called as ISRO (Indian Space Research Organization) which have its head-quarter in the city of Bengaluru, Karnataka, India. ISRO was formed on 15 August 1969.

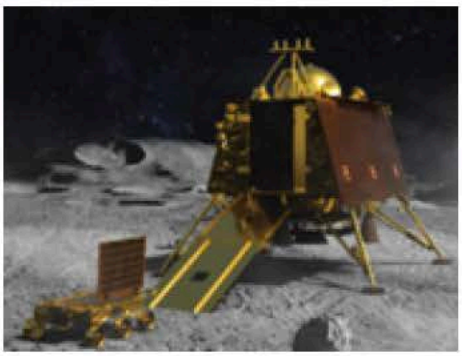
Successful mission done by ISRO:

ISRO made the first satellite Aryabhata, which was launched by Soviet Union on 19 April 1975. Rohini was first satellite which was placed in an orbit by Indian satellite launch vehicle SLV-3.



CHANDRAYAN-1:

India's first mission to moon was launched successfully on 22nd October 2008 from SWATISH DHAWAN SPACE CENTER, Sriharikota.it was sent to moon by Polar Satellite Launching Vehicle c-2. The spacecraft was orbiting around moon at a height of 100 km. The aim of the mission was chemical, mineral analysis and photo geologic mapping of the moon.



CHANDRAYAN-2:

This mission is the successor of Chandrayan 1, ISRO planned to land on the moon surface. At first Chandrayan -2 was tried to launch on 15th July 2019, but due to some technical issue the plan for launching was postponed and the satellite was launched on 22th July 2019 at 2:43pm by Geosynchronous Satellite Launching Vehicle Mark 3 at Swatish Dhawan Space Center, Sriharikota.

CHANDRAYAN-2 has three modules:-

- Orbiter
- Lander(Vikram)
- Rover(Pragyan)

The orbiter will rotate the moon 100 km away from the moon surface and the lander will land South Polar Region of the moon. India is going to be the first country that land in the southern part of the moon. From the lander a wheeled Pragyan rover will come out which will move on the lunar surface of the moon, all the responsibility of the whole mission is depend upon the Pragyan Rover. Rover can move up to 400m away from the moon.

AIM of Chandrayan-1:

1. To know the material of the moon surface and finding out Mg,Fe etc.
2. To find out water.
3. Taking the 3D picture of the moon.
4. Chances of water presence.

ADITYA L-1: After the successful launching of Chandrayan-2 ISRO is planning to send a spacecraft named Aditya-L1 to the sun which is going to be built in collaboration between ISRO and other Indian research institutes.

The spacecraft is estimates to be launched on 2020 by Polar Satellite Launching Vehicle-XL from Sriharikota.

The Aditya-L1 will observe only the solar cornea .The outer layer of the sun, it have a temperature of more than a million kelvin which is higher than the solar disc temperature of around 6000K. The reason behind the solar cornea's high temperature is still an unanswered question in physics.

Aditya-L1 will study the diagnostic parameter of solar cornea, particle flex emanating from the sun which reach to L1 orbit, imaging the solar photosphere, it will understand the composition of the solar wind and it will understand the dynamic events of solar cornea.

Be Alert!

We are going to lose our precious part within the end of 21st century

Mousumi Mitra (BOPTM 3rd Year)

Why? This is so

Eye, the precious part of our body, which we are going to lose very shortly.
The reason behind this none other than us only. There is nothing secret of that the blue light of cell phone which damages our beautiful eye. But we knowing this that it's damaging our eyes then also we are doing nothing. We are going to the deep and deep of this and losing our vision.

How? This will happen

The huge uses of cellphone, laptop, and computer now a days becomes the main cause of vision loss now a days.
The children, teenager, adults are using their cellphone, instead of being free they spends time on cellphone. From the Blue light of cell causing the macular degeneration, a part of eye damage, the Blue light which turns a molecule into a poison in the eye and that kills the photoreceptors, which do not regenerate, and lastly vision will loss.

How we save our eyes from this era of using cell phones

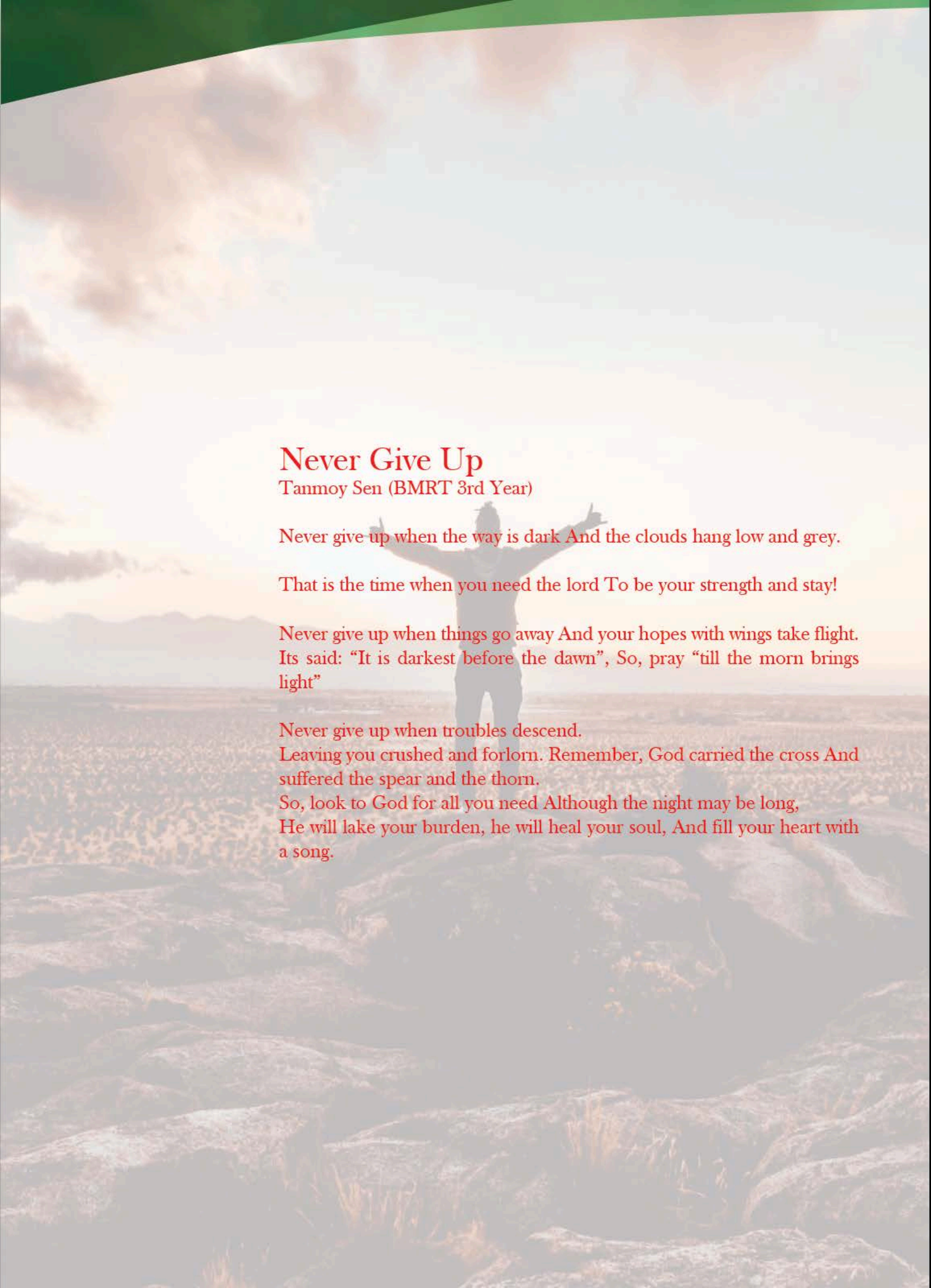
We all know we can't suddenly stop using this device but we have a solution to save our eye. At least we can save few more time of our beautiful life. which we are going to lose in 2 year's we will lose it next 6 years that's means at least we can get few more beautiful moment of our livelihood. As we lose our vision that means we will lose our beauty of our life and if you want to live happily then avoid use of this device and spend time with your companions.

If we seriously take care of our eyes. Who r using mobile they all know that we are losing our visual power. But most of us don't know how to save or how to take care of it.

Now I have a solution! It's simple cool down not a big deal.

- Exercise regularly to improve circulation
- Adjust brightness & contrast of your cell
- Drink at least 8 glass of water daily
- Try to rest 8 hours every night
- Avoid rubbing of eyes
- Use sunglasses when you go out (safely eyewear)
- Keep proper distance at least (33cm) from your mobile
- Don't rub your eyes
- Eat orange colour & leafy green vegetables
- Visit your near optometrist regularly

Again and again try to keep distance from your cellphone not only for eyes, your ear, heart, brain all are going to lose their power at a certain.



Never Give Up

Tanmoy Sen (BMRT 3rd Year)

Never give up when the way is dark And the clouds hang low and grey.

That is the time when you need the lord To be your strength and stay!

Never give up when things go away And your hopes with wings take flight.
Its said: "It is darkest before the dawn", So, pray "till the morn brings light"

Never give up when troubles descend.
Leaving you crushed and forlorn. Remember, God carried the cross And suffered the spear and the thorn.
So, look to God for all you need Although the night may be long,
He will lake your burden, he will heal your soul, And fill your heart with a song.

Harvest the rain water....

Pritam Borah & Rasheed Miah (BMRIT 2nd Year)

"INDIAN'S WATER CRISIS DEEPENS AS HYDERABAD MIGHT RUN OUT OF WATER LIKE CHENNAI"
- BUSINESS INSIDERS
"CHENNAI, BENGELURU & HYDERABAD ARE ABOUT TO RUN OUT OF WATER WE MUST ACT BEFORE IT'S TO LATE" - INDIAN TIMES
"HYDERABAD HAS JUST 48 DAYS OF DRINKING WATER LEFT"- TOI (Jul 13/ 2019)

By reading these headlines from some of India's most trusted news media, we can surely understand that we are facing such a demonic situation.
India is the second most populated country in the world and in respect to that we don't even have enough ground water to fulfil the water need of all these people.
To face this problem India is coming up with a great initiative which is rain water harvesting. The history of rain water harvesting much older then we think, the construction and use of cisterns to store rain water can be track back to the Neothalic age. The harvesting of rain water is mainly discovered in Southwest Asia. Rain water harvesting of rain was also common in Roman Emperor as well as in Mughal Emperor
The factors that contribute to water issue include poor management of resources, and manmade waste
Mains water is a precious resource due to increasing in demand from our over growing population
Rainwater harvesting can provide around 50% of families water needs. This harvesting thing not only saves water but saves money and reduces our impact on the environment. Rainwater harvesting is the collection and storage of rainwater for reuse on site instead of allowing it to run off. Rain water harvesting is one of the simplest and oldest method of self-supply of water for house hold.
The main modality of this harvesting system is to differ the water we use for drinking and we use for other household tasks, which will release a huge amount of reliability on ground water.

Process of harvesting rain water:-

Rooftop: rooftop rain water harvesting is technique through which rain water is captured from the roof catchments and stored in reservoir.

At present, in Pune (Maharashtra), rainwater harvesting is compulsory for any new society to registered

Tamil Nadu is the first state in India which has made roof top rain water harvesting structures compulsory to all the houses across the state.

Types of catchments: different types of catchments to be marked on the site plan. The collection efficiency of a particular catchment will be determined by the fact weather the catchment will be paved, unpaved or roof.

Area of catchment : the amount of rainfall that will be collected will depend on the area of the catchment – the larger the catchment, the more the water
Rain Water Harvesting Methods There are three methods of harvesting rain water as given below:

(a) Storing rain water for direct use
(b) Recharging ground water aquifers, from roof top run off
(c) Recharging ground water aquifers with runoff from ground area

CLAIM YOUR RAIN WATER
it's yours to use

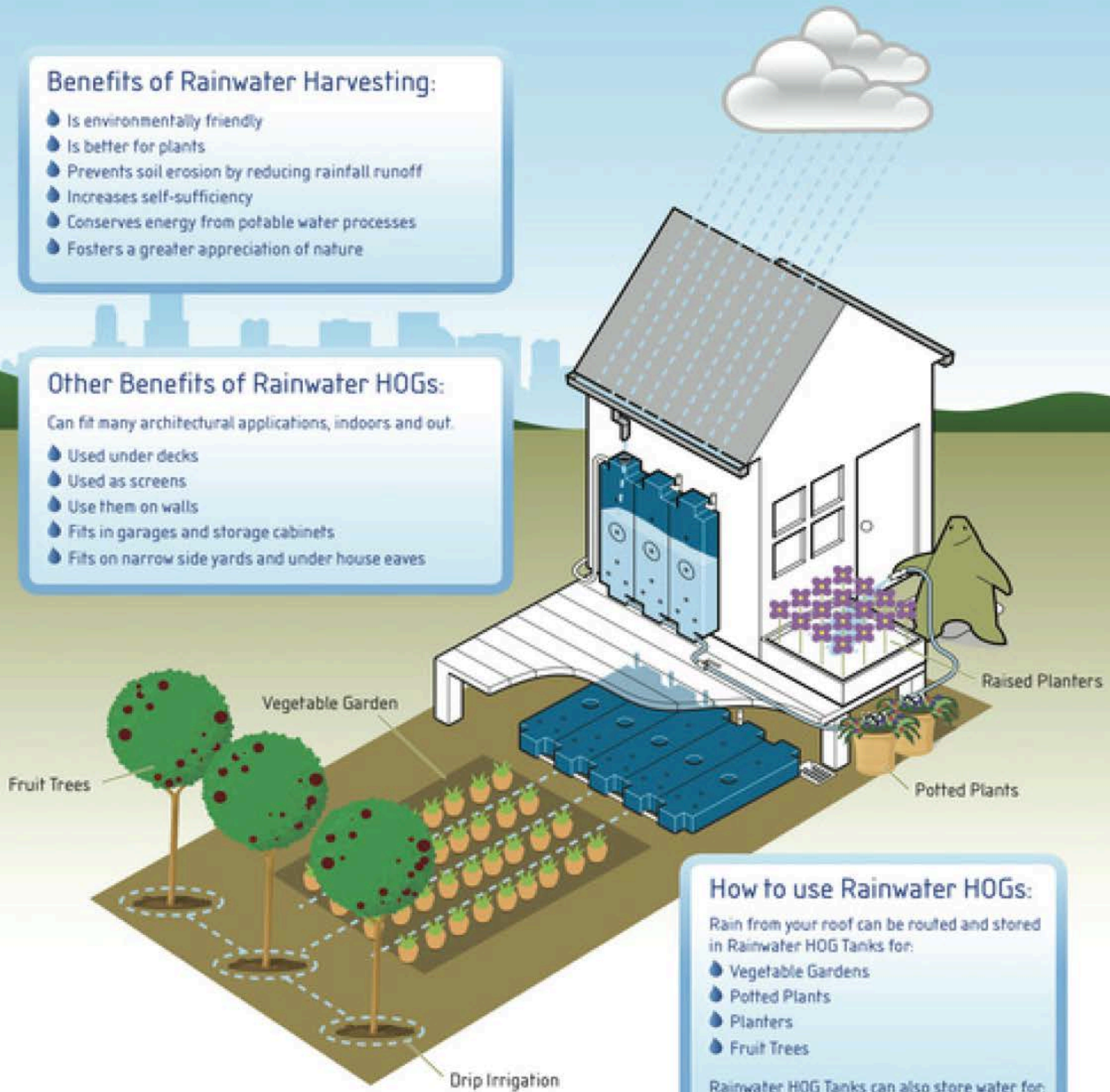
Benefits of Rainwater Harvesting:

- Is environmentally friendly
- Is better for plants
- Prevents soil erosion by reducing rainfall runoff
- Increases self-sufficiency
- Conserves energy from potable water processes
- Fosters a greater appreciation of nature

Other Benefits of Rainwater HOGs:

Can fit many architectural applications, indoors and out.

- Used under decks
- Used as screens
- Use them on walls
- Fits in garages and storage cabinets
- Fits on narrow side yards and under house eaves



How to use Rainwater HOGs:

Rain from your roof can be routed and stored in Rainwater HOG Tanks for:

- Vegetable Gardens
- Potted Plants
- Planters
- Fruit Trees

Rainwater HOG Tanks can also store water for:

- Emergency Potable Water
- Flushing Toilets
- Drip Irrigation Systems
- Grey Water Systems (reusing bath, laundry & sink water)
- Decorative Landscape Fountains

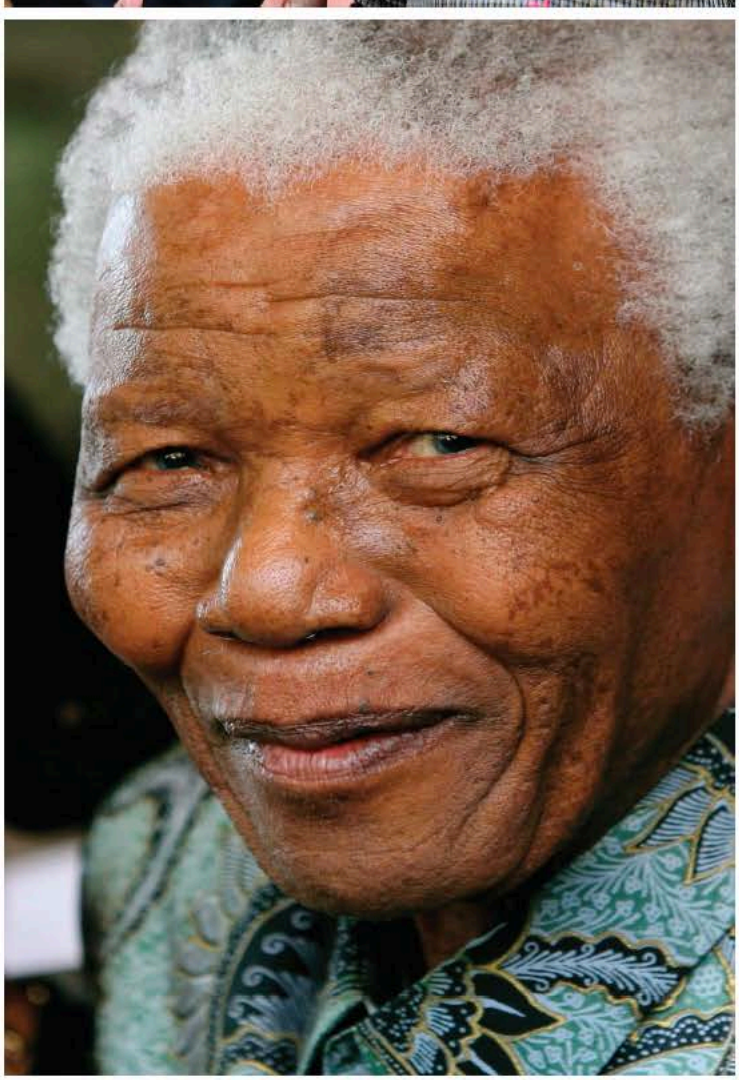
UNFAIR

Jimli Paul (BMRT 3rd year)

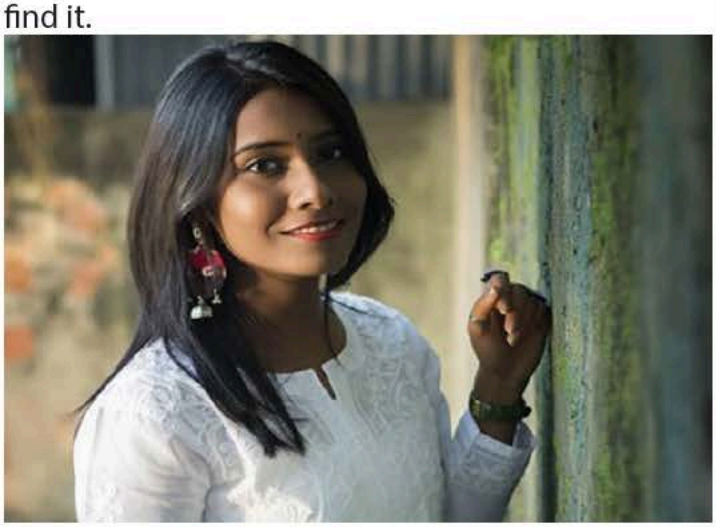
Your life is only fair to you when you have the will to do something which is meaningful to you as well to others. Unfair usually means injustice to a person or not being fair to someone. But there is another version of unfair. So, I would like to highlight unfair related to fairness or complexion. In this world till today, from being ignored to school because of her darkness to being rejected in a job interview .They are being humiliated for not getting married just because of their dark complexion.

No fairness Cream in this World can provide the glow to their achievements of the Great Women's like Pt Usha and Hima Das and many more who made India proud of them. Krishnakali Saha a recent singer from Tripura who went to Indian idol on 2018. She was being discriminated just because of her skin colour but still then she never gave up and created her own identity through her determination and will power.

Nelson Mandela is another example who was a South African who served as President of South Africa from 1994 to 1999. He was the countries first Black Head. The cruel true fact of the world is that we all like black things but not Black people. Ask, a question to yourself only is it really fair to judge people on the basis of their colour, caste or just because they are disabled. But, what really matters is their knowledge and hard work on a particular field they are interested in. So, there is nothing to be ashamed of no matter whatever you do just be honest and humble. Then no matter how much people judge you, it won't matter to you. Because people will judge you anyway if you do well or bad it never matters to them, they will judge you always.



Just be yourself and never ever Judge others. In the end be fair to yourself, and then there would be no delusion that things should be fair to you. Unfair to one, but not to all. Why, the Question never ends. But the answer is only on you so try to find it.



CANCER: EARLY DIAGNOSIS: BETTER PROGNOSIS

PRABHAKAR SINGH AND PH DICKSON SHARMA (BMRT 2nd YEAR)

WHAT CANCER IS?

Cancer is a general term for a large group of diseases whose causes, characteristics and occurrence can vary greatly. There is no completely clear-cut definition of cancer. At cellular level, abnormal cells divide uncontrollably and destroy body tissue.

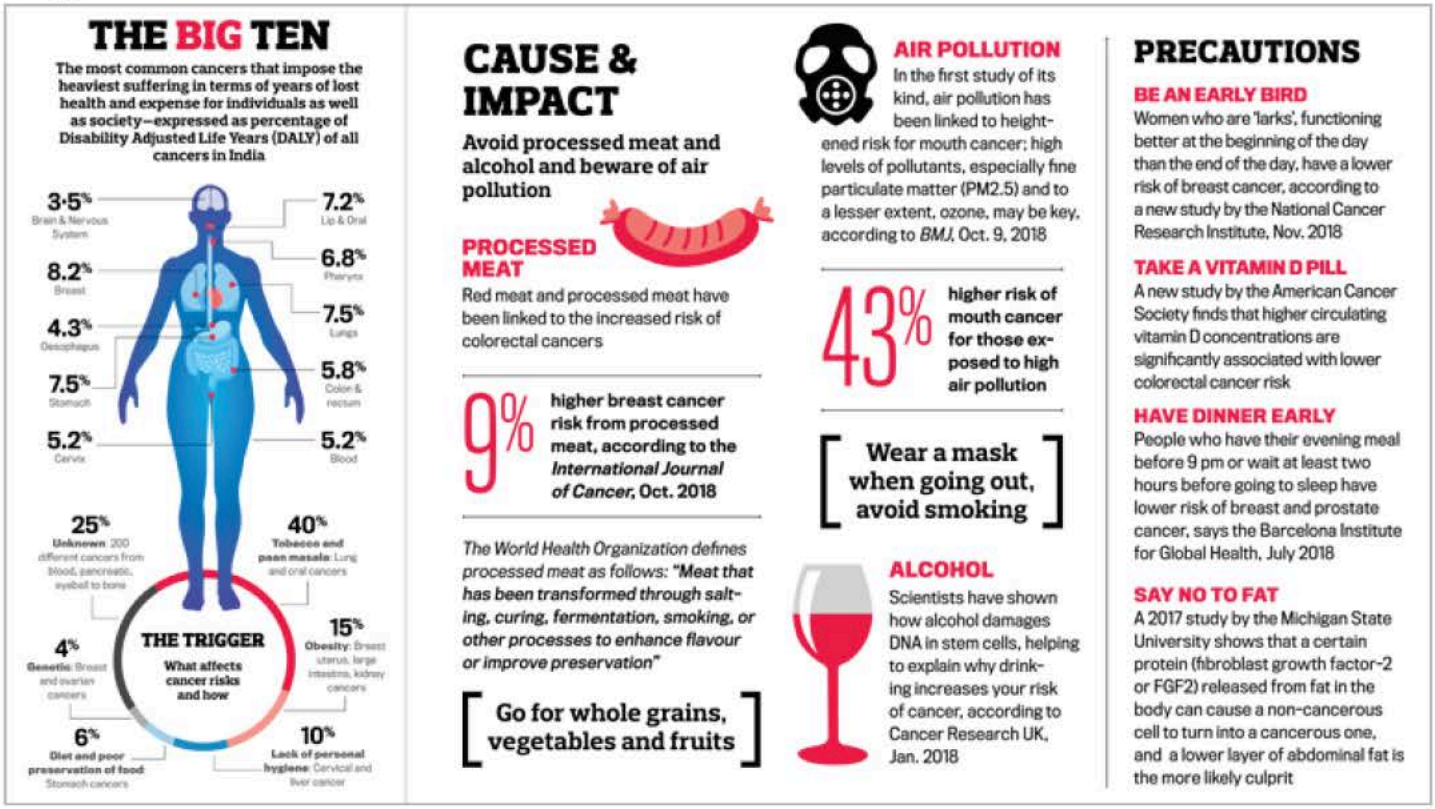
WHY CANCER IS SO LETHAL?

Cancer is one of the deadliest disease in the world. After its proper establishment in the body, it is very tough to cure it because of following reasons –

1. Cancer is not detected by the body's immune system.
2. Cancer adopts to treatment.
3. Cancer spreads (metastasize) to different body parts.
4. Genetically Cancer could be patient specific

CANCER AND MORTALITY

- Cancer is the second leading cause of death globally, and is responsible for an estimated 9.6 million deaths in 2018.
- Globally, about 1 in 6 deaths is due to cancer.
- Approx. 70% of deaths from cancer occur in low- and middle-income countries.

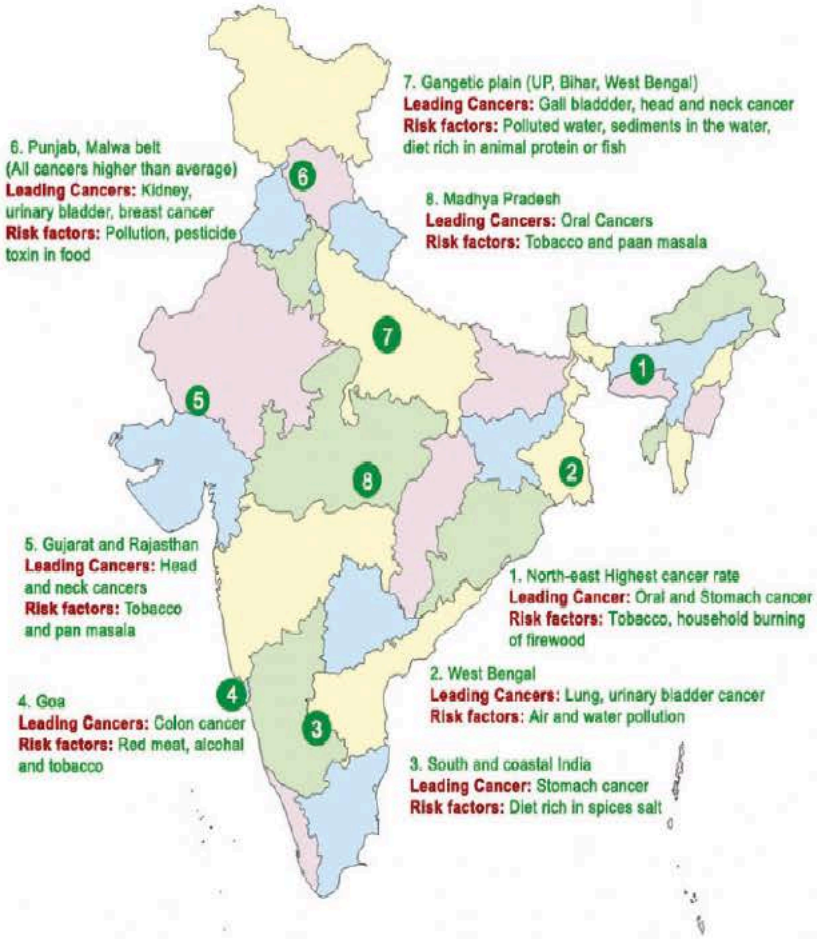


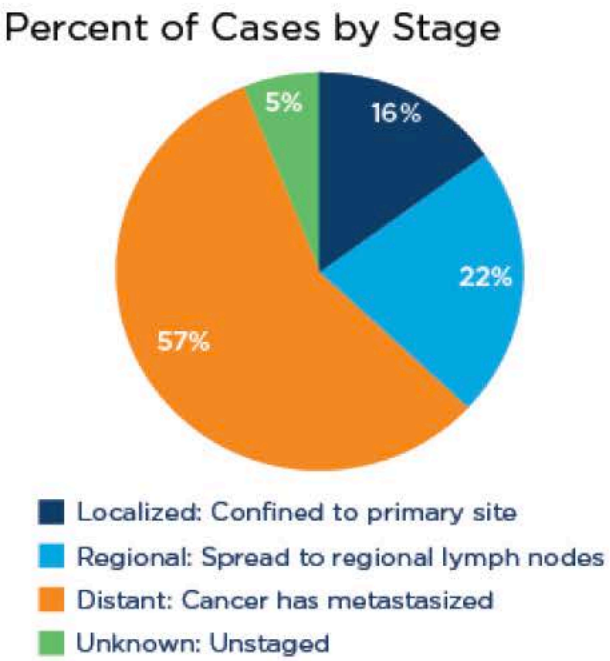
FUTURE OF GROWTH OF CANCER AT GLOBAL SCALE

Role of cancer screening and early detection in better prognosis:

- Cancer screening and early detection are part of secondary cancer prevention. By detecting cancer at earliest stage possible, curing it or slowing its progression, preventing complications and limiting disability both length and quality of life can be maximized.

- Early detection is the identification of disease in an individual when it is still localized, curable or manageable.





Factors influencing participation in screening and early detection

FACTOR	MANIFESTATION
Delay	Individual may delay reporting symptoms on a positive test result for months.
Lack of knowledge about early symptoms	Due to less knowledge about early symptoms it may cause delay for accurate treatment.
Individual personality	Low self-esteem, denial, fear, embarrassment.
Age	The elderly are less likely to participate in screening programs or suspicious symptom.
Access to care	Lower socioeconomic status frequently results in lack of access to care and poorer survivor.

Guidelines for the early detection of cancer in asymptomatic people

SITE	RECOMMENDATION
Breast	Women of age 40 and older should have a mammogram every year. Women in their 20s and 30s should have clinical breast examination every 3 years.
Colon and rectum	Beginning at age 50 men and women should follow a fecal occult blood test every year and flexible sigmoidoscopy every 5 years.
Uterus	Screening should be done every year with regular pap test or every 2 years using liquid based test.
Cancer related checkups	A cancer related checkup should include health concealing and depending on person's age, might include examinations for cancer of oral cavity, skin lymph nodes, testis, ovaries and thyroid as well as for some malignant diseases.

SOURCE: THE AMERICAN CANCER SOCIETY (2004)

REFERENCES: Cancer source book for nurses (American Cancer Society), World Health Organization (WHO) Statistics of Cancer, Indian Cancer Institute, Walter and Miller Textbook of Radiotherapy.

Hijama (Cupping): a review of the evidence

MOUTAK NATH (BMLT 3rd year)

Hijama means cupping, but in Arab and Muslims culture it refers to wet cupping. At present, there is much controversy around the practice of wet cupping. To evaluate the current scientific evidence for Hijama, specifically wet cupping, we searched for relevant literature using CAM on PubMed, ACP jou Hijama means cupping, but in Arab and Muslim culture it refers to wet cupping. At present, there is rnal club, Cochrane controlled trials register, Cochrane database of systematic reviews, Cochrane methodology register, database of abstracts of reviews of effects, health technology assessment database, Journals@Ovid, MEDLINE and the NHS economic evaluation database. Three systematic reviews investigated the effectiveness of wet and dry cupping. Two of the reviews found some evidence of effectiveness for cupping and pain. Favourable effects were reported for wet cupping when used as an adjuvant to conventional drugs. The third systematic review found very little evidence of effectiveness for cupping and stroke rehabilitation. Other clinical and observational studies were of limited quality. Few randomised controlled trials have examined the effectiveness of cupping (specifically wet cupping), and those that have been published were generally of low quality, with many limitation.

Methods

This review set out to examine the best available evidence for Hijama (mainly wet cupping), as traditionally practised in the Arab world. Although proponents of alternative medicine often cite the large number of studies that have been performed, including unpublished data, critics point out that there are no data on exactly how many of those studies are controlled, double-blinded, peer-reviewed experiments, or how many studies produced results supporting alternative medicine or parts thereof. To address this issue, we conducted a comprehensive search of CAM on PubMed, ACP journal club, Cochrane controlled trials register, Cochrane database of systematic reviews, Cochrane methodology

What is cupping (hijama)?

Cupping (hijama) is the best remedy recommended and used by the Messenger (Sallallaahu alayhi Wasallam). The Messenger (Sallallaahu alayhi Wasallam) said, "Indeed the best of remedies you have is cupping (hijama) ..." [Saheeh al-Bukhaaree (5371)]. He (Sallallaahu alayhi Wasallam) also said that on the night of Israa (his ascension to the heavens) he (Sallallaahu alayhi Wasallam) did not pass by an angel except that it said to him, "Oh Muhammad, order your Ummah (nation) with cupping (hijama)." [Saheeh Sunan Tirmidhee (3479)]. This shows the importance and greatness of this Sunnah.

Cupping (hijama) is of three types:

Dry Cupping (hijama) - This is the process of using a vacuum on different areas of the body in order to gather the blood in that area without incisions (small, light scratches using a sterile surgical blade or disinfected razor).

Dry massage cupping (hijama)- This is similar to dry cupping (hijima) but olive oil is applied to the skin (before applying the cups) in order to allow easy movement of the cup.70% of diseases, pains and ailments are due to the blood being unable to reach certain parts of the body.

Dry cupping (hijama) and dry massaging cupping (hijama) allow the blood to reach these places. Dry and massage cupping (hijama) may be self-administered in the comfort and privacy of your own home. Each cupping (hijama) box is accompanied but an instrucon booklet. We have also provided further instrucons on our 'How to Cup' page.

Wet Cupping (hijama) - This is the process of using a vacuum at different points on the body but with incisions in order to remove 'harmful' blood, which lies just beneath the surface of the skin. (It is recommended that wet cupping (hijama) is only administered by a cupping therapist). Wet cupping(hijama)is based administered at certain mess of the day and days of the week. Wet cupping (hijama) is from the sunnah. To obtain maximum benefit from cupping (hijama), it is recommended that all three methods of cupping are used. Is cupping (hijama) a cure for every disease? Cupping (hijama) is a cure for every disease if performed in its correct time. The messenger (Sallallaahu alayhi Wasallam) said, 'Indeed in cupping (hijama) there is a cure.'

Conclusion:

The majority of Systemic reviews and RCTs to date suggest a favourable effect of wet cupping when used either alone or in combining with covenantal treatment, for pain, especially tension headache and musculoskeletal pain. However the low quality of RCTs invesgang wet cupping, attributed to inadequate randomising and blinding and the lack of ethical review, affects the credibility of such studies. This may be one reason why many CAM studies, except perhaps CAM surveys, are published in low impact journals. The body of CAM literature remains very small. It represents less than 1% of Medicine content. Even when 14 databases, including CAM databases, were searched for RCTs on cupping And its effect on pain, only seven RCTs were identified. Most of the positive results originated from China.

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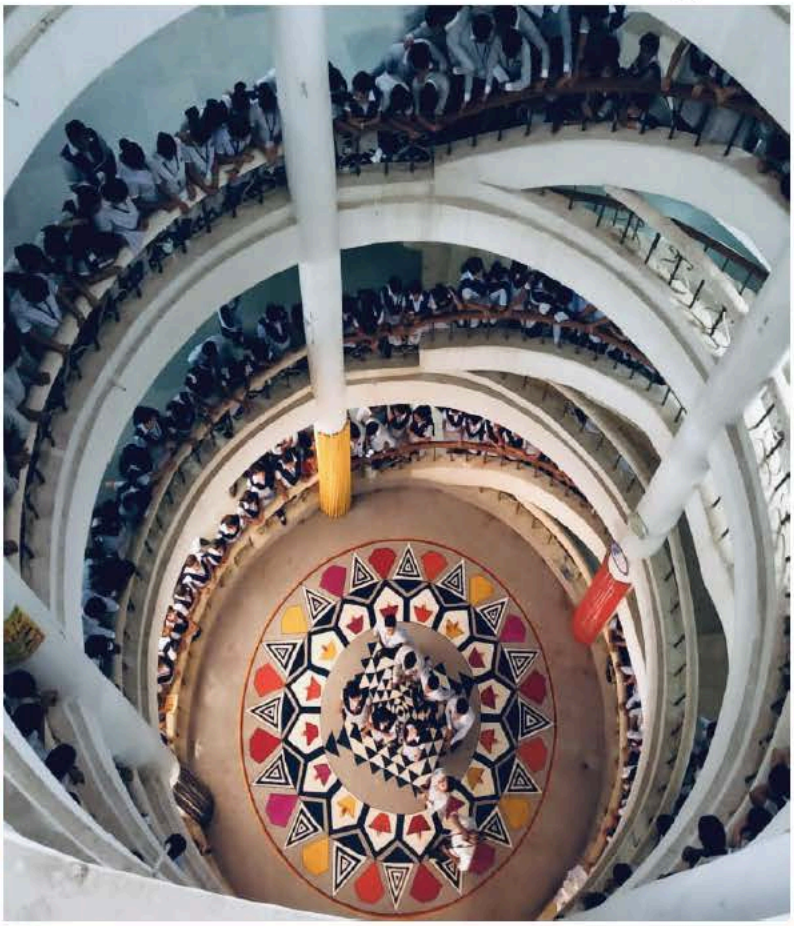


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