



Pulse

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PREVENTIVE CARE 'A STITCH IN TIME'



Cure

Prevention

CONTRIBUTORY HEALTH SERVICES SCHEME



सत्यमेव जयते

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MMC accredited multispecialty CMEs held in the year 2019

Sr No	Date	Department	Speakers	Topic	Venue
1	15.02.2019	SURGERY	Dr. Shishir Shetty	Colorectal cancer - treatment	Conference Hall - 1,
		MEDICINE	Dr. Rushi Deshpande	How to interpret investigations in kidney diseases	BARC Hospital
		ORTHOPEDECS	Dr. Swapnil Keny	Referring a wound before it reaches the bone	
2	26.04.2019	DISPENSARY	Dr. Ketaki Utpat	Basics and radiological aspects of ILD	Conference Hall - 1,
			Dr. Gayathri Amonkar	Pathological aspects of ILD	BARC Hospital
			Dr. Prashant Chhajed	Management of ILD	
3	21.06.2019	GYNAECOLOGY & OBSTETRICS	Dr. Sudeshna Ray	Care of Creator	Conference Hall - 1,
		OPHTHALMOLOGY ENT	Dr. Hitesh Sharma	Uveitis as a manifestation of systemic disorders	BARC Hospital
			Dr. Hetal Marfatia	Timely intervention in ENT pathologies – My perspective	
4	16.08.2019	PSYCHIATRY	Dr. Kersi Chavda	Endocrinology and mental health	Conference Hall - 1,
		RADIOLOGY	Dr. Vipul Chemburkar	Cardiac CT	BARC Hospital
		ANAESTHESIA	Dr. Jitendra Jain	Advances in chronic pain management	



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12.07.2019	E N T	Speech and language development in children- normatives and red flags	Smt. Bisma Dafadar
28.06.2019	Dispensary	Diet in type 2 Diabetes Mellitus	Dr. Sachin Kadam
14.06.2019	Anaesthesia	Airway devices - basics and beyond (lecture with hands on experience)	Dr. Priyanka Acharya, Dr. Kajal Dalal
31.05.2019	Pathology	Cytomorphology of salivary gland lesions and histopathological correlation	Dr. Raja Selvan
10.05.2019	Medicine	Do's and Don'ts in dermatology	Dr. Kunal Bhandari
12.04.2019	Gynaecology	Gynaec major vaginal surgeries	Dr. Nigamananda Mishra
22.03.2019	Surgery	Medical management of BPH	Dr. Vicky Kuldeep
08.03.2019	Dispensary	Adolescent health	Dr. Anita Patil
22.02.2019	Paediatrics	Awareness of Autism - Role of primary care giver	Dr. Neha Naik Satam
25.01.2019	Orthopaedics	Orthopaedic emergencies	Dr. Rakesh Prasad
11.01.2019	Psychiatry	The Mental healthcare act 2017 - Implications for clinical practice	Dr. Yogesh Motwani, Dr. Apurva Ungratwar, Dr. Krishna Prakash, Dr. Shraddha Lotlikar

Dear Readers,

Of late, several instances of violence against doctors have been in the news. These are becoming increasingly common not just in India but all over the world. A survey by Indian Medical Association found that more than 75% doctors have faced violence at work, and are often held responsible for poor public healthcare system.

People expect that doctors should be good clinicians, politely answering all doubts, and counseling patients as well as their relatives. They are expected to work in rural areas, not aim to earn money, and no patient should die under their care. Patients seek the best possible treatment at the lowest possible cost while in reality, cost of modern medicine and quality treatment has increased over the years.



In India, often the patients are instigated by an unknown sympathizer or local leader, leading to violence and vandalism. Common triggers are sudden deaths, loss of a child or a young patient or the only earning member, denial of admission, delay in providing care, shortage of life saving drugs, equipment, abuse and negligence by the hospital staff. Long waiting hours, lack of information & communication and non-transparent billing adds to the aggression. Junior doctors are often given the task of communicating news of death, seeking permission for conducting postmortem or explaining adverse events. Studies have shown that senior doctors face less violence than junior doctors although it is not clear if they are better at handling the situation.

India spends only Rs.1112 per person per year on public health. Official statistics show 0.7 doctors per 1000 Indians with a shortfall of 82% specialists, 40% lab technicians, 12-16% nurses and pharmacists at community and public health centers. More than 20% of Indian population live below the poverty line; medical insurance coverage is practically non-existent and about 20% healthcare delivery is provided by the government while remaining is by private sector. Public health services, where the most desperate patients come, are stretched to their limits often with short supply of life-saving drugs, medicines and equipment.

Resident doctors, who are the backbone of public healthcare services, work round-the-clock, are sleep deprived and often lack basic amenities at their hostel facility. They have to deal with overcrowded outpatient departments often compelling them to do jobs like crowd management, pushing trolleys and escorting patients between departments.

Doctors, after losing a patient, feel traumatized and take it as their personal failure. They also have to deal with fear of physical assault from the relatives. Media too has played a role in sensationalizing and blaming doctors, often without any proof, adding to distrust and skepticism amongst people.

Like in all professions, there are a few black sheep in medicine too. Reports of profit driven practices by unscrupulous doctors have increased patient distrust. Genuine cases of negligence can be dealt by the courts but most people do not prefer the legal route as it is costly and time consuming.

The current scenario demands an overhaul of public healthcare services with better budget allocation, more infrastructure, adequate supplies, more personnel and better security. Medical training should include soft skills training to improve effective communication and empathy. As far as possible, seniors should deal with serious issues of breaking bad news.

Assaulting doctors and damaging property is a crime under the Medical Protection Act (2010) in at least 19 states of India and offenders can get a prison term of up to 3 years and fine of Rs.50,000. However, this act neither features under the Indian Penal Code (IPC) nor under the Code of Criminal Procedure (CrPC). Hence, introducing a central law, making this offence non bailable, having fast track courts and stringent punishment to offenders might act as deterrents.

Universally, 'code violet' refers to hospital's response to violent or combative persons or use of weapons. Every hospital should be prepared for violence with an emergency protocol for handling it. Staff must be trained to recognize warning signs and react proactively. They must also be encouraged to report all incidents of violence to competent authorities which should be followed up appropriately.

Aggression against doctors will only worsen the healthcare situation. Although medical science has given the doctors exceptional power to push biological limits, such power is always finite. Rekindling faith in doctors, being realistic and acceptance of being mortal will help reduce anti-doctor sentiments.



*Dr. Shrividya Chellam
Chief Editor, Pulse*

**(The above information is not reflective of CHSS facilities or its beneficiaries)*

Dear Readers,

Goal of preventive healthcare is to prevent diseases, help people stay healthy, enjoy a longer lifespan and quality of life. Prevention of illness reduces the burden of disease and healthcare costs while maintaining productivity of an individual and bestows significant psychological and social benefits to him/her & all who are associated with the individual.

Primary prevention helps to reduce risk factors for onset of diseases like lifestyle modifications reduces cardiovascular risk, Immunization prevents illness & death from vaccine preventable diseases like diphtheria, hepatitis B, measles, mumps, pertussis, pneumonia, polio, rotavirus diarrhea, rubella, tetanus, cancer cervix etc. Immunization prevents 2-3 million deaths every year, worldwide. Although global vaccination coverage is 85%, yet 1.2 million children died of preventable diseases in 2015.

In India, more than 8 lakh infant deaths occurred in 2017 due to poor sanitation, malnutrition & lack of access to basic healthcare. Children under 5 years died of preventable & treatable communicable as well as non-communicable diseases representing nearly half of annual Indian deaths while those between 5-14 years were victims of injuries especially road traffic accidents and drowning.

Secondary prevention helps to detect and treat preclinical conditions e.g. annual health checkup, screening for conditions like high blood pressure, diabetes, osteoporosis; cancer screening with mammography, pap smear, colonoscopy etc. Early detection results in more cost effective interventions. The Indian government introduced tax benefits in 2011-12 for preventive health checkup as an incentive.

Tertiary prevention involves delaying the progression of disease so that the damaging impact of disease on patient is reduced. Although cost of prevention is a fraction of cost of treatment, healthcare is strongly biased towards curative than preventive treatment. Only 9.6% of overall healthcare expenditure is spent on preventive healthcare while 90% goes into treating disease and its complications, mostly, lifestyle disease (cardiac disease, hypertension, obesity, cancer, injuries, malnutrition, Type 2 diabetes, smoking, alcoholism). Preventive healthcare will reduce the pressure on secondary/tertiary healthcare system.

At BARC Hospital, the CHSS scheme allows its beneficiaries to have regular access to basic and specialist healthcare, annual checks and regular follow up. Antenatal care clinics, immunizations, congenital deafness screening, breast and gynaecological cancer screening, clinics for rheumatologic diseases, thyroid ailments, hypertension and diabetes, health talks on lifestyle modifications, seasonal maladies etc. are being conducted regularly under preventive healthcare.

The current issue of 'Pulse' focuses on preventive healthcare as, 'an ounce of prevention is worth a pound of cure'.



A handwritten signature in blue ink, appearing to read 'Dr. Kaustubh Mazumdar'.

Dr. Kaustubh Mazumdar
Head, Medical Division

Posture for a Pain-Free Back

Back pain is a silent epidemic. Estimates show that nearly 90 percent of people in industrialized societies suffer from some form of back pain. For many, this becomes chronic, lasting decades of their lives. The pain and suffering impacts the person's overall well-being, inhibiting their ability to live their life to the fullest.

Commonly cited causes are numerous: we are not designed to be upright, we are too sedentary, we endure too much stress, we are too heavy and we wear out with age. 5.5 million years of being upright is plenty of time, even by evolutionary standards, for our spines to adapt. The problem is not evolutionary, but cultural: we have forgotten how to stand, sit, and move. We no longer use our bodies in ways they were designed for. We have lost our postural health, putting unnatural stresses on our musculoskeletal system which result in pain.

Medical practitioners recognize the importance of good posture in alleviating pain but are sometimes unable to recommend sustainable practices. This is where the Gokhale Method™ is able to make a big difference.

The Gokhale Method™, created by Esther Gokhale, is a set of techniques that helps patients recover their natural body wisdom, architecture and ways of moving thus reducing pain and dysfunction. The method's emphasis is on improving posture through everyday activities like sitting, standing, walking, bending, sleeping, lifting, etc.

The method is based on anthropological evidence across three kinds of populations.

- Our ancestors who knew how to move and live without pain
- Babies across cultures who know how to move without pain.



Smt. Sangeeta Sundaram,
Gokhale Method Teacher

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- Some indigenous cultures living in a non-industrialized world that still know how to move without pain.

So based on these populations, what does good posture look like?

1. Upright and relaxed:

People mistake being upright and tense for good posture. They arch their back or pull their shoulders back and imagine that is good posture. Often times doing so strains the back. That exaggerated posture is not sustainable, and it is also not healthy. Toned muscles are very helpful, but there shouldn't be strain.

Good posture is when people are upright and relaxed. This requires a well-positioned pelvis—or a pelvis that is tipped or anteverted so that the front of the pelvis is lower than the back so that the vertebral column can stack easily on top of that. Both the pelvis and feet work as the foundation. Well-shaped feet have a kidney-bean-shaped footprint, with an external rotation in the leg. All of this helps prevent the muscles from being strained as they try to hold one upright.

2. Elongated backs with “J”-shaped spines:

These populations have a regal posture and it is very compelling. They have what one could describe as a “J” shape in the spine, which is very different from the “S” and “C” shapes that

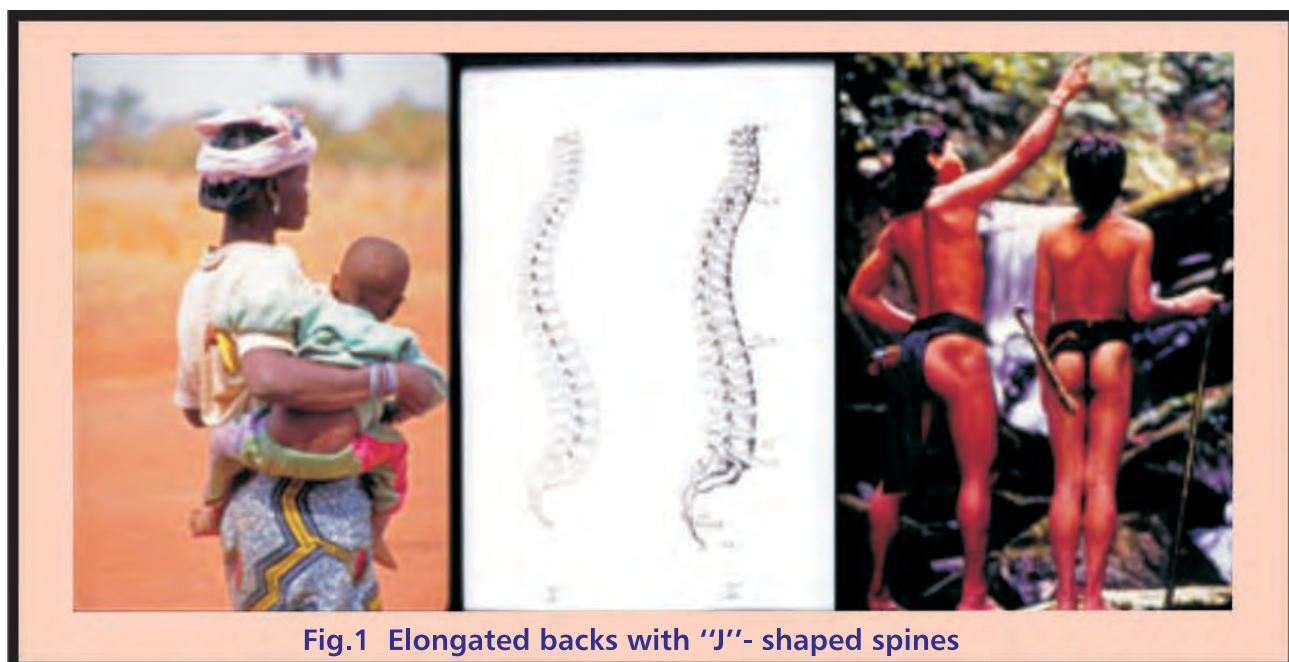


Fig.1 Elongated backs with "J"- shaped spines

are seen in urban populations in the industrialized world. The J shape is characterized by a relatively flat lumbar spine with a strong curve at the very bottom, leaving the behind. We believe that this J shape of the spine helps preserve the discs, supports the spine to stay naturally lengthened, and allows the back and neck to remain pain-free.

3. Strong gluteal muscles

The next noticeable difference among these traditional populations is in their gluteal muscles. They are strong and well-developed. The anteverted position of their pelvis places the gluteal muscles in a position of mechanical advantage, so the muscles are put to work every time the person walks.

Gluteal amnesia or "dead butt syndrome" is something noticeable in many of the modern populations. Long hours of sitting are often blamed for the gluteal muscles not activating. This results in poor positioning of the pelvis and the hips, which can be hurt during movement. Strong and active gluteal muscles help keep the hips stable and the pelvis anteverted and retain overall postural health for the long term.

A simple everyday movement like walking, when done properly, becomes a healthy habit that allows the gluteal muscles to engage and stay strong. Learning to walk in an erect way, activating the gluteal muscles and making sure that landing is soft, so one is not jarring the body, is also something we teach people in the Gokhale Method™.



Fig.2 Strong gluteal muscles

4. Toned deep abdominal muscles:

The combination of a well-aligned, elongated spine that keeps the deep abdominal muscles like external oblique, internal oblique and transversus abdominus muscle engaged and doing challenging activities like carrying heavy objects, walking for long hours with weight on the back or head, and moving actively all day results in strong, toned deep abdominal muscles.

The Gokhale Method helps develop these muscles as part of the 'inner corset', thus stabilizing the trunk. Strenuous activities like jogging, swimming, biking, and dancing, done with healthy form, strengthen these muscles.

When it comes to baseline postural support, muscles like the six-pack rectus abdominis and the erector spinae, are not of primary importance. These muscles are used for larger movements, such as bending over or arching the back; they should not be the main muscles keeping the spine upright. Typically, these muscles tend to get overused, while the deeper, stabilizing postural muscles get underused.



Fig 3: Toned abdominal muscles

A key characteristic of the Gokhale Method™ is that a lot of the work is done through your pre-existing, everyday activities rather than through a set of specialized exercises. You do not need to take time out of your life to strengthen and stretch these muscles. Rather, if you live and function in everyday life in a skillful way, a lot of the strengthening and stretching is taken care of in the process.

Here are a few Gokhale Method™ tips for better posture and less back pain.

Try these exercises while you're working at your desk, sitting at the dinner table or walking around.

1. Shoulder rolls: These are easy and effective and a really good first measure. Do these one at a time. With small movements, simply move one shoulder forward, then up, then back, and down. Repeat on the other side, and then relax.

Now your arms are hanging in a different place, and you've ratcheted the soft tissue of the shoulder back a notch. You don't have to remember anything, just one roll. Now you'll find the shoulders stay in a different place. This does wonders for the circulation in your arms and back. You won't be hunching forward as much, and your breathing pattern will improve.

2. Lengthen your spine: Adding extra length to your spine is easy. Being careful not to arch your back, take a deep breath in to grow taller. Then maintain that height as you exhale. Repeat: Breathe in, grow even taller and maintain that new height as you exhale. This takes some effort, but it strengthens your abdominal muscles.

3. Squeeze, squeeze your gluteal muscles when you walk: In many indigenous cultures, people squeeze their gluteus muscles every time they take a step. That's one reason they have such shapely buttock muscles that support their lower backs.



Fig 4: Shoulder roll

Start by taking a look at your gluteal muscles, or your butt muscle, in the rear leg. Begin by squeezing your gluteals with every step you take. Being aware of your gluteals and remembering to squeeze them with every step will give your walk more power and also help improve gluteal muscle tone. Since we spend a lot of time walking, it's worth trying to implement.

4. Don't put your chin up: Instead, add length to your neck by taking a lightweight object, like a bean bag or folded wash cloth, and balance it on the top of your crown. Try to push your head against the object. This will lengthen the back of your neck and allow your chin to angle down — not in an exaggerated way, but in a relaxed manner.

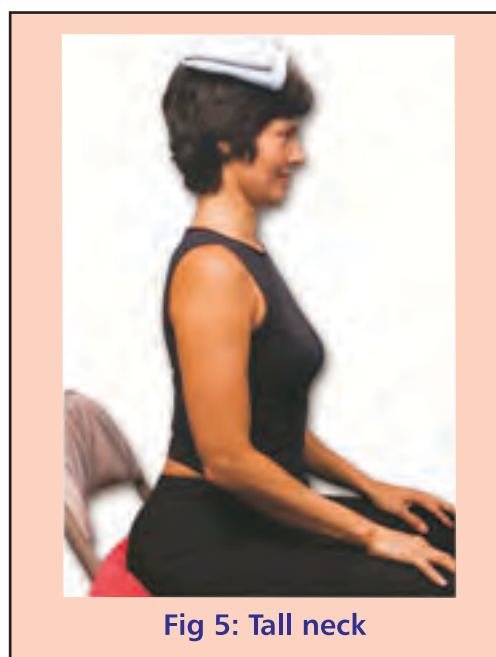


Fig 5: Tall neck

5. Don't sit up straight! That's just arching your back and getting you into all sorts of trouble. Instead, do a shoulder roll (step 1 above) to open up the chest and take a deep breath to stretch and lengthen the spine.

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Prevention of Cervical Cancer

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Dept. of Gynaecology and Obstetrics

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Dr. Vaishali Jadhav

Cervical cancer is the fourth most common cancer in women, with an estimated 560,505 new cases and 284,923 deaths in 2015, globally. Nearly 85% of cervical cancer cases and 80% of cervical cancer related deaths happen in developing countries. India accounts for one fourth of the global cervical cancer burden. It is the second most common cancer amongst Indian women after breast cancer. [1]

The incidence of cervical cancer related deaths is more in developing countries due to lack of access to cervical cancer prevention, screening and treatment.

Chronic and persistent infection with high-risk Human Papilloma Virus (HPV) may result in cervical pre-cancer which, if untreated, may progress to cervical cancer. Genital HPV infection affects around 80% of sexually active males and females. Identification of the etiologic co-factors responsible for the persistence of HPV infection and its progression to neoplastic changes is a challenge. There are more than 150 types of HPV. Amongst these, the International Agency for Research on Cancer (IARC) has defined 12 high-risk HPV types that are associated with cancers in humans (types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59) [2]. The commonest among HPV types are 16 and 18. HPV 16 is the most common subtype responsible for causing squamous cell cancer while HPV 18 is responsible for adenocarcinoma[3,4]. Out of all invasive cervical cancers, 70% are caused by infection with HPV 16 and 18. 41-67% of high-grade squamous intraepithelial lesions, 16-32% of low-grade squamous intraepithelial lesions and 6-27% of atypical squamous cells of undetermined significance are also estimated to be HPV 16/18 positive [3]. Presence of HPV expresses the oncogenic

proteins E6 and E7 that inactivate the host regulatory proteins p53 and pRb, respectively[4,5]. It takes 10 years or longer from the time HPV infection is acquired for it to progress to invasive carcinoma.

Other Risk Factors for Cervical Cancer

The risk of cervical cancer increases with the following factors:

1. Early age of onset of sexual activity and multiple sexual partners [6].
2. Tobacco smoking [7]
3. Women on immunosuppressive medications, a diet low in fruits and vegetables, a long-term use of oral contraceptives and poverty [7,8,9].

Prevention of cervical cancers with HPV vaccination and early detection of precancerous cervical lesions through screening and treatment with a single-visit 'screen-and-treat' approach appears promising for low-middle-income countries including India.

Primary prevention: HPV Vaccines

HPV immunization prevents up to 70% of cervical cancer due to HPV as well as 90% of genital warts.[2] The US Food and Drug Administration (FDA) has approved 3 HPV vaccines:

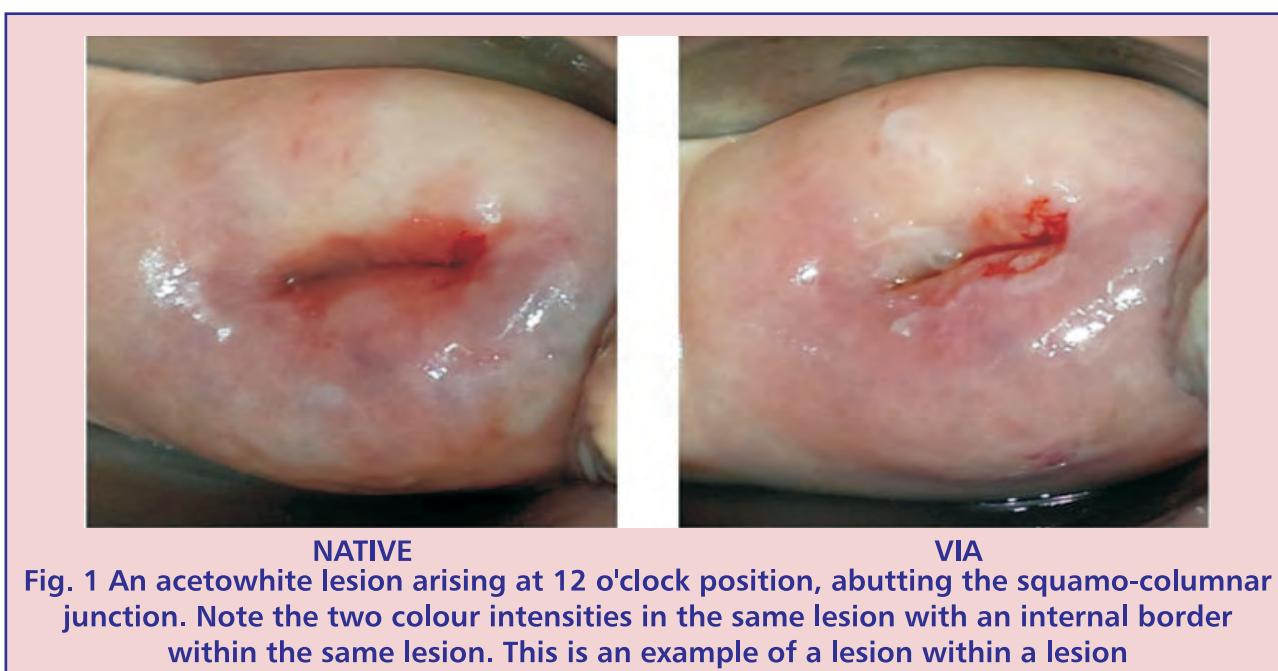
1. Cervarix (The bivalent HPV vaccine) targets HPV 16 and 18 only.
2. Gardasil (The quadrivalent HPV vaccine) targets HPV 16 and 18 as well as 6 and 11.
3. Gardasil 9 (The nonavalent HPV vaccine) targets 9 HPV types 6, 11, 16, and 18 along with 31, 33, 45, 52, 58—these cause 90% of cervical cancer cases and most cases of genital warts—making it the most effective vaccine available; Gardasil 9 is the only HPV vaccine currently available in the United States.

According to WHO, HPV vaccines have good efficacy and safety profiles. HPV vaccination remains a primary prevention tool but it does not protect all high risk types. But, screening with 'Pap' test is recommended in later life. The WHO recommends the HPV vaccination to be included in the national immunization

program in countries with effective counselling. Cervical cancer and HPV-related diseases can be prevented by introducing vaccine. Fifty-eight countries (30%) have introduced HPV vaccine in their national immunization program for girls and in some countries also for boys by August 2014 [10]. Previously, vaccination with 2-dose HPV vaccine had been recommended for girls aged 9-12 years [11,12]. In 2016, the Advisory Committee on Immunisation Practices(ACIP) revised its HPV vaccine schedule with dose reduction from 3 to 2 doses under the age of 15. In 2018, FDA approved the vaccine in men and women till age 45. (Table 1)

Table 1. HPV vaccination schedule for females and males

Age	Vaccination schedule	Time interval
9-14(female)	2 dose HPV vaccine	0 and 6-12 months
15-45(female)	3 dose HPV vaccine	0,1-2 and 6 months
21-45(male)	3 dose HPV vaccine	0,1-2 and 6 months



Secondary prevention: Screening and early detection of Cervical Cancer

As HPV vaccination does not replace cervical cancer screening, screening strategies should be developed and followed. [13]

Screening of all the women without any symptoms with the aim of detecting and treating precancerous lesions of the cervix, is important to control cervical cancer incidence. Several screening options like cytology (conventional, liquid based, automated pap), testing for high-risk HPV and visual-based screening methods have been initiated and practiced in different regions worldwide.

The WHO recommendation for developed and underdeveloped countries is to use a strategy of screening with an HPV test followed by VIA (Visual Inspection after Acetic acid) and treat ('Screen and treat' approach) (Fig. 1).

Screening with cytology followed by colposcopy (with or without biopsy) and then treating with cryotherapy (Fig. 2) or LEEP (Loop Electrosurgical Excision Procedure) is recommended only for countries where it is feasible and sustainable [14].

According to ACOG (American College of Gynaecology), ASCCP (American Society for

colposcopy and Cervical Pathology) and USPSTF (US Preventive Services Task Force), screening of all women between ages of 21 to 65 years is recommended.

There are following 3 options for screening:

- 1) Pap only test – every 3 years,
- 2) Pap- HPV cotest- every 5 years in women more than 30 up to 65 years with previous normal screening.
- 3) High risk HPV only test – every 3 years in women more than 25 years.

Colposcopy is also a good tool for screening patients with unhealthy cervixes, but it's difficult to implement in national screening guidelines in low to middle income countries.

There is **no need to screen women older than 65** years unless there is a diagnosis of cervical pre-cancer. Similarly, screening is **not recommended for women who have undergone hysterectomies for a benign cause** and who do not have prior history of cervical cytology higher than CIN2. For women who test negative on Pap smear but positive on HPV test, rescreening after 1 year with HPV and cytology both is recommended.

In BARC Hospital and dispensaries, we follow screening strategy of cervical inspection and cytology. If found unhealthy, then colposcopy

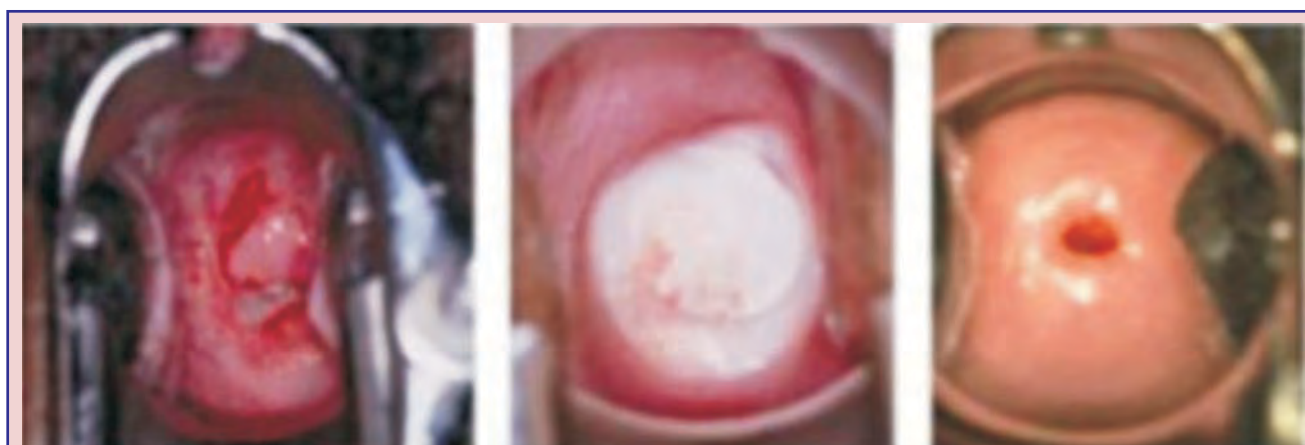


Fig 2: A- Unhealthy cervix; B- Immediately after cryotherapy; C- Cervix after 4 months of cryotherapy.

is performed followed by biopsy.

As of now, primary prevention of cervical cancer include education of females and males regarding sexual hygiene, delaying sexual activity till 18 years, avoiding multiple sexual partners and use of condoms. Screening combined with HPV vaccination can substantially reduce the worldwide cervical cancer morbidity and mortality.

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Lung Cancer Screening: Why, When and How?

Introduction

Lung cancer is the second most common malignancy in both men and women resulting in more than 1.5 lakh annual deaths and more than 2 lakh new cases in the United States. Lung cancer is curable if detected at an early stage and high-risk individuals can be identified. However, if diagnosed after symptoms manifest, lung cancer has often spread to regional or distant sites, resulting in 5-year survival rates of only 28% and 4%, respectively.

Screening with Low-Dose Chest Computed Tomography (LDCT) provides a reasonable approach to reduce deaths from lung cancer.

Imaging technique

National Lung Screening Trial (NLST), the largest randomized, prospective multicenter Lung Cancer Screening (LCS) trial to date, established LDCT of the chest as an effective



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Head, Dept. of Radiology,
BARC Hospital

LCS tool. LDCT was defined as average whole-body effective dose of 1.5 mSv (one-fifth that of a routine chest CT scan).

Patient eligibility criteria for LCS.

Several American medical societies have since recommended LCS with LDCT although the eligibility criteria vary among institutes. (Table 1).

Table 1 Eligibility criteria for lung cancer screening with low-dose computed tomography

Organization	Age (y)	Smoking History (Pack-years)	Years Since Quitting Smoking	Other
CMS	55-77	≥ 30	<15	-
USPSTF	55-80	≥ 30	<15	-
American Association for Thoracic Surgery				
Tier 1	55-79	≥ 30	-	Additional risk factor ^a
Tier 2	>50	≥ 20	-	Lung cancer survivor >5y
ACCP and ASCO	55-74	≥ 30	<15	-
American Cancer Society	55-74	≥ 30	<15	-
National Comprehensive Cancer Network				
Group 1	55-74	≥ 30	<15	-
Group 2	≥ 50	≥ 20	-	At least 1 additional risk factor ^b

Definition: 1 pack year = having smoked 1 pack of cigarettes per day for 1 year.

Abbreviations: ACCP- American College of Chest Physicians

ASCO- American Society of Clinical Oncology; CMS- Centers for Medicare and Medicaid Services; USPSTF, US Preventive Services Task force.

^a Additional risk factors for lung cancer defined by the American Association for Thoracic surgery include chronic obstructive pulmonary disease, environmental and occupational exposures, any prior cancer or thoracic radiation, and genetic or family history.

^b Additional risk factors for lung cancer defined by National Comprehensive Cancer Network include cancer history, lung disease history, family history of lung cancer, radon exposure, and occupational exposure

Imaging protocols

The American College of Radiology (ACR) and the Society of Thoracic Radiology (STR) released a joint practice parameter for the performance and reporting of LCS LDCT. It is to be performed without any contrast material during a single breath hold in full inspiration. The scan should cover an area from the lung apices to the costophrenic angles. Radiation should not exceed a CT volumetric dose index (CTDI vol) of 3 mGy for a standard-sized patient (170 cm and 70 kg) with appropriate adjustments for smaller and larger patients. Slice thickness should be no more than 2.5 mm. Maximum Intensity Projection (MIP) reformats are recommended to increase the sensitivity of pulmonary nodule detection.

Facility readiness

It is important to understand that LCS with LDCT is not simply a test but is a process that requires a structured approach and a multidisciplinary team. It is therefore advantageous to form a lung screening program. In addition to the ACR-STR practice parameter, the American College of Chest Physicians and the American Thoracic Society have also issued statements regarding what they consider best practice for the implementation of LCS programs in clinical practice. Briefly, a team with members from pulmonology, radiology, thoracic surgery, interventional radiology, medical oncology and radiation oncology is required to run an effective program that ensures that screening is properly performed; results are interpreted appropriately; and disease, if detected, is managed appropriately.

Team members of LCS program (Table 2)

Table 2: Lung cancer screening program team members			
Hospital Leadership	Referring Providers	Nodule Management Experts	Support Staff
<ul style="list-style-type: none"> • Management • Finance • Public relations • Human resources 	<ul style="list-style-type: none"> • Primary care providers • Specialists 	<ul style="list-style-type: none"> • Interventional pulmonology • Interventional radiology • Medical oncology • Pulmonology • Radiation oncology • Radiology • Thoracic surgery 	<ul style="list-style-type: none"> • Patient navigator • Smoking cessation • Information technology

Imaging findings

Images should be reviewed on a Picture Archiving and Communication System (PACS) workstation with the goal to detect signs of early lung cancer, such as pulmonary nodules, and to identify potentially significant findings. Nodules should be examined on contiguous thin-cut images (1 mm thickness) to determine the nodule morphology because this has implications for the nodule management algorithm. MIP images should be reviewed to increase the sensitivity for nodule detection. All nodules need to be compared with the baseline and any preexisting imaging studies to determine whether they are growing or stable. The most common differential diagnoses for a solitary non-calcified pulmonary nodule include both benign and malignant causes (Table 3).

Table 3: Common differential diagnosis for solid non-calcified pulmonary nodule	
Benign	Malignant
Granuloma (non-calcified) Hematoma Intrapulmonary lymph node Focal pneumonia Focal scarring	Lung cancer Solitary metastasis from extra thoracic malignancy

Table 4: Conditions other than nodule

PULMONARY	NON-PULMONARY
Emphysema Bronchitis Bronchiectasis Interstitial lung disease	Coronary artery disease or other cardiac findings Aortic aneurysm, abdominal > thoracic Thyroid nodules Renal calculi Liver disease (steatosis, cirrhosis) Chronic pancreatitis Extrathoracic neoplasms like Liver, Adrenal, Pancreas, Breast, Lymphomas.

A variety of findings other than pulmonary nodules can also be expected on LCS LDCT. Common diagnoses include emphysema, bronchitis, infection, bronchiectasis, and sometimes pulmonary fibrosis (Table 4).

Diagnostic Criteria

The diagnostic criteria for LCS LDCT are provided by the Lung CT Screening Reporting and Data System (Lung-RADS) Version 1.0. The ACR developed this clinical decision-orientated reporting system in order to standardize LCS LDCT reporting and management recommendations, reduce confusion in LCS CT interpretation and facilitate outcome monitoring. It is a structured reporting system for the interpretation of LCS CT examinations.

Nodules are classified based on morphology as solid, part solid and nonsolid. A solid nodule has homogeneous soft tissue attenuation. A nonsolid (ground-glass) nodule manifests as hazy attenuation in the lung that does not obliterate the bronchial and vascular margins. A part-solid nodule consists of both ground-glass and solid soft tissue attenuation components. Size corresponds to the average diameter rounded to the nearest whole number as measured on lung windows. Increase in size by at least 1.5 mm on serial examinations is proof of growth as per Lung-RADS criteria. The management recommendations for a particular nodule are

determined by the morphology and size.

Lung-Rads Categorization Of Pulmonary Nodule

Category 0 corresponds to incomplete information caused by suboptimal technique or missing prior examinations. Category 1 corresponds to definitely benign nodules, such as calcified granulomas and hamartomas or no nodules. The management recommendation is to continue annual screening with LDCT in 12 months. Category 2 nodules have a very low likelihood of becoming a clinically active cancer because of size or lack of growth and should undergo annual screening with LDCT in 12 months. Category 3 nodules are probably benign and include nodules with a low (1-2%) likelihood of becoming a clinically active cancer. Management recommendation is to obtain LDCT in 6 months. Category 3 nodules that remain unchanged at follow-up should be reclassified as category 2 nodules. Category 4 nodules are suspicious, with a probability of malignancy of at least 5%. Management recommendations include LDCT in 3 months for category 4A, and CT with or without contrast, PET/CT, or tissue sampling for category 4B. The presence of suspicious features triggers the addition of the Lung-RADS X modifier to a category 3 or 4 nodule. Suspicious features include spiculations in a solid nodule, rapid enlargement of ground-

glass nodule with a doubling time of less than 1 year, or additional findings such as lymphadenopathy. The Lung-RADS category of the most concerning nodule determines the specific management pathway.

Classification System

Category 0 (incomplete)

- prior CT studies were performed, but are not available for comparison
- lungs are incompletely imaged

Category 1 (negative, <1% chance of malignancy)

- no lung nodules
- lung nodule(s) with specific findings favoring benign nodule(s)
- complete calcification
- central calcification
- popcorn calcification
- calcification in concentric rings
- fat-containing nodules

Category 2 (benign appearance, <1% chance of malignancy)

- solid nodule(s)
 - <6 mm at baseline
 - new nodule <4 mm
- sub solid nodule(s)
 - <6 mm on baseline screening
- ground glass nodule(s)
 - <30 mm (Version 1.1 change previously 20 mm)
 - ≥30 mm and unchanged or slowly growing (Version 1.1 change previously 20mm)
- Category 3 or 4 nodules that are unchanged for ≥3 months

Category 3 (probably benign, 1-2% chance of malignancy)

- solid nodule(s)
 - ≥6 mm to 8 mm at baseline
 - new nodule 4 mm to <6 mm
- subsolid nodule(s)
 - ≥ 6 mm total diameter with solid component <6 mm
 - new <6 mm total diameter

- ground glass nodule(s)
 - ≥30 mm on baseline CT or new (Version 1.1 change previously 20mm)

Category 4A (Probably suspicious, 5-15% chance of malignancy) (Version 1.1 change previously suspicious)

- solid nodule(s)
 - ≥8 mm to <15 mm at baseline
- growing nodule(s) <8 mm
 - new nodule 6 mm to <8 mm
- subsolid nodule(s)
 - ≥ 6 mm total diameter with solid component ≥6 mm to <8 mm
 - new or growing <4 mm solid component
- endobronchial nodule

Category 4B (suspicious, >15% chance of malignancy)

- solid nodule(s)
 - ≥15 mm at baseline
 - new or growing, and ≥8 mm
- subsolid nodule(s)
 - solid component ≥8 mm
 - new or growing ≥4 mm solid component

For new large nodules that develop on an annual repeat screening CT, a 1 month LDCT may be recommended to address potentially infectious or inflammatory conditions. (Version 1.1 addition)

Category 4X (suspicious, >15% chance of malignancy)

- Category 3 or 4 nodules with additional features or imaging findings that increase the suspicion of malignancy includes:
 - spiculation
 - ground glass nodule(s) that doubles in size in 1 year
 - Enlarged regional lymph nodes
- For new large nodules that develop on an annual repeat screening CT, a 1 month LDCT may be recommended to address potentially infectious or inflammatory conditions. (Version 1.1 addition)

Modified categories

[X]S (e.g. "3S") if there is a clinically significant or potentially significant non-lung cancer finding

(Version 1.1 removal): [X]C (e.g. "3C") for a patient with a prior diagnosis of lung cancer who returns to screening

Recommended Follow-Up

Category 0: Comparison with prior studies before assignment of Lung-RADS classification

Category 1: Continue annual screening with LDCT

Category 2: Continue annual screening with LDCT

Category 3: 6-month follow-up with LDCT

Category 4A: 3-month follow-up with LDCT

PET/CT may be used if there is a ≥ 8 mm solid component

Category 4B and 4X: Chest CT with or without contrast, as appropriate

PET/CT and/or tissue sampling depending on the probability of malignancy and comorbidities (PET/CT if solid component ≥ 8 mm)

For new large nodules that develop on an annual repeat screening CT, a 1 month LDCT may be recommended to address potentially infectious or inflammatory conditions. (Version 1.1 addition)

Management Of Imaging Findings

A screening program needs to have predefined nodule care pathways in order to manage screen-detected lung nodules

Summary

Although LCS with LDCT represents a valuable opportunity to reduce lung cancer mortality in high-risk patients, it is not simply a test but is a process that requires a structured approach and a multidisciplinary team. Standardized imaging protocols, structured reporting with

Lung- RADS, and well-defined care pathways are required to realize the potential of LDCT. At BARC hospital, we plan to start a customized LCS LDCT program for our beneficiaries, in coordination with other specialties.

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Preventive Health - Role of Family Physician

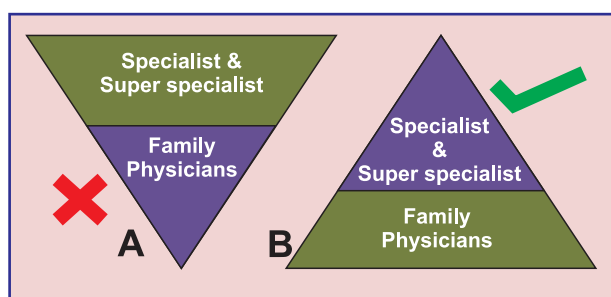
“The doctor of future will give no medicine, but will interest his patient in the care of human frame, in diet, and in the cause and prevention of disease.”

- Thomas A. Edison

Indian Scenario (Fig. 1)

Doctors' distribution in India (A) Vs Ideal distribution (B)

Fig 1



The Alma-Ata declaration of 1978 is a milestone and it identified primary health care as a key to attainment of goal of 'Health for All' and 'Preventive Health'. Thus began reorientation of medicine back to personal, primary care.

Family Medicine concept: It is an approach to medicine that places the patient and not the disease at the centre of care. The focus of family physician is not just on what disease the patient has, or which system or organ is affected, but on seeing the patient as a whole and manage most of the problems of patient in context of family and community and refer to a specialist when required.

Definition: It is a medical speciality that provides continuing care and comprehensive health for the individual and family. It



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integrates the biological, clinical and behavioural sciences. It encompasses all ages, sexes, each organ system and every disease. It is a three dimensional speciality, incorporating (1) Knowledge (2) Skill (3) Process.

Who is a family physician?

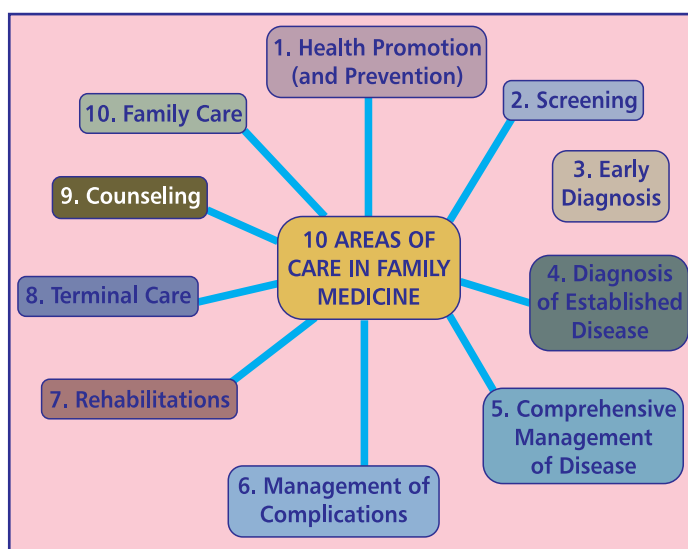
A family physician is multi-competent specialist and gives single window health care service & has following characteristics:

- Is a primary care physician.
- Is a skilled clinician.
- Gives personal and “whole-person” care from cradle to grave.
- Accessible, knows family.
- Provides care in undifferentiated stage of disease.
- Provides cost effective care and continuity of care.

Characteristics of Family medicine:

- 1) First point of contact.
- 2) Personalized care (patient centred): Has a person-centred approach, oriented to individuals, their family and their community.

- 3) Unique consultation process: Has a unique consultation with effective communication between doctor and patient.
- 4) Comprehensive care: For all ages, gender, acute and chronic health problems.
- 5) Continuity of care.
- 6) Coordination of care: Makes efficient use of healthcare resources through coordinated care with other professionals/specialists.
- 7) Addresses common illnesses.
- 8) Follows the 'Red Flag' concept.
- 9) Cost effective care.
- 10) Family focused care.
- 11) Community orientated.
- 12) Whole-person care.



Areas of care in family practice: (Fig.2) There are 10 main areas of care in Family medicine and a good family physician is well versed with these levels of delivery of care.

Health promotion and disease prevention

Family physicians are ideally placed to undertake health promotion and disease prevention due to following reasons:

Difference between General medicine and Family medicine:

General medicine

Patient comes in well differentiated stage.
Gives episodic care.
Explores disease depth.
Cannot accept uncertainty.
Age and organ limited.
Focuses on biological problem.

Family medicine

Patient comes in undifferentiated stage.
Maintains continuity of care.
Explores patient depth.
Accepts uncertainty.
No age or organ limitation.
Focuses on bio-psycho-socio-spiritual dimension.

Difference between Community medicine and Family medicine:

Community medicine

Care of community-public health.
Non-clinical.
Health promotion at community level.
Promote healthy public policy & legislation
Strengthens community.

Family medicine

Care of individual and family health.
Clinical.
Health promotion at individual and family level
Comprehensive, continuous care.
Co-ordinates care of the individual/family.

- 1) He/she is the first point of contact for patients.
- 2) He/she has the knowledge of the patient's personal and family health history.
- 3) He/she is capable of undertaking opportunistic health promotion and prevention activities.

Role of family physician in health promotion.

1) Health education:

Family physician gives high quality health information in understandable format to his patients which help them to make their own rational decisions about health.

Health Education is given by following ways:-

(a) Pre-consultation health education:

A Family physician has a great role in opportunistic health education. OPD waiting area is the best place for health education as complete attention of patients and relatives is available. Wide screen TV can be installed to display health related videos. Nurses or local volunteers can give simple health education through interesting flash cards and demonstrations. Health pamphlets and posters can be used for specific health conditions.

(b) Health education during consultation:

Health education by the physician has great impact on patients. Physician must look for areas of need for health education.

(c) Post-consultation health education:

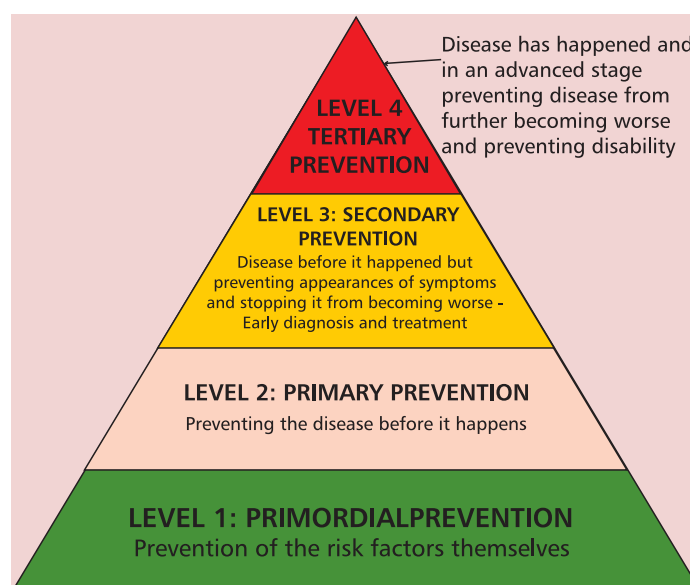
Patients can be counselled about life-style modification at the post consultation

stop, where patient's medicines, diagnosis and follow-up plan is reinforced. This can be easily done by a trained nurse or a social worker.

(d) Health education in inpatient services:

It is given by physician and health team during ward rounds. Organised health promotion activities can be established in wards where patients are accessible for longer hours.

2. Disease prevention: (Fig. 3)



There are four levels of prevention:-

(a) Primordial prevention:

Means prevention of risk factors themselves. It is useful in the prevention of chronic diseases by giving special attention. Family physician can give pamphlets to parents regarding diet and exercise for children to prevent adulthood problems of obesity and chronic illnesses.

(b) Primary prevention:

It is defined as the action taken before the onset of disease, which removes the possibility that the disease will ever occur.

It is done by two methods,

(1) **Health education:** Giving health information to people and change their life style and behaviours.

(2) **Health protection:** Taking precautions to protect our body against disease and injury.

(c) **Secondary prevention:** Action which halts the progress of a disease at its early stage and prevents complications.

Family physician help in early detection of disease (screening tests and case finding programs) and adequate treatment in early stages of disease.

Thus physician attempts to arrest disease process, restore health and treat it before irreversible changes take place and stops spread of infectious diseases, thus protecting others in the community from getting infections.

(d) **Tertiary prevention:** It is used when disease process has advanced beyond its early stages. Physician can reduce or limit impairments, disabilities and promote patients' adjustment to conditions which cannot be cured. Family physician role is to limit disability, provide rehabilitation and palliative care.

3) Health protection:

This consists of making laws, policies or voluntary practises that are aimed at improving living and working environment and prevention of ill health.

E.g. Family physician can make patients aware about 'No smoking law' at public places which will help reduce heart disease and lung cancer. Also, creating awareness about use of 'seat belt law' while driving will help protect from injuries during motor vehicular accidents.

4) Screening:

Screening detects disease in its earliest stage and helps find individuals at risk or with diseases who are not receiving adequate care.

Physician uses following types of screening in his practices.

(a) **Mass screening:** Screening of whole community/age group for some problems. e.g. anaemia.

(b) **Selective screening:** For certain conditions, physician need to screen only selected people. e.g. those over age 35 years can be screened for hypertension.

(c) **Opportunistic screening:** Physician screen when patient come for other problems. e.g. we can screen for hypertension when a person comes with a simple cold.

(d) **Regular screening:** Specific problems can be screened by doing routine health activity e.g. detecting malnutrition by doing regular growth charts monitoring for under 5 children.

Barriers in delivering preventive care:

1) Time constraints: Average time with patient is 5-7 minutes in busy OPD, so less time is given for preventive care.

2) Lack of organised system in hospital to provide effective preventive services.

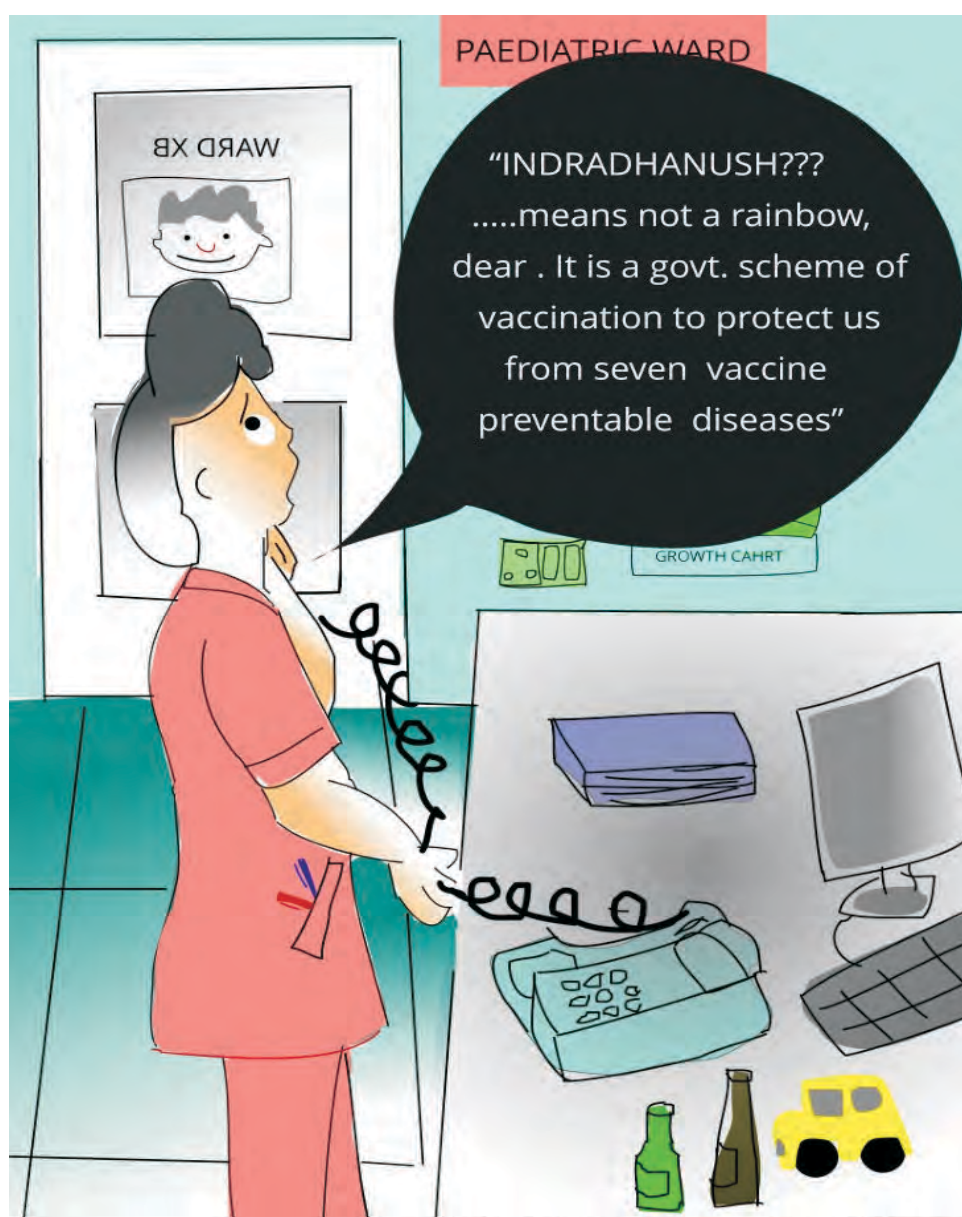
3) Failure to adapt and maintain an orientation towards preventive health.

4) Preventive activities may not generate much income.

To summarize, family physician provides a community based, competent, compassionate, whole person primary care in a cost-effective way.

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Why all the fuss about hand hygiene?

Hands are the most common and major pathway of germ transmission during health care. According to WHO statistics, of every 100 hospitalized patients, at least seven in developed and 10 in developing countries will acquire healthcare associated infections. [1,2]

“Hand hygiene” is said to be the single most important tool which avoids transmission of harmful germs to prevent healthcare associated infections and antibiotic resistance in healthcare settings.

The concept of hand hygiene came, in early 19th century. Between 1841-1846 there were 2 obstetric clinics in Vienna; first was run by medical students and consultants often shuttled between mortuary and labour ward. The second clinic was run by midwives who did not attend the mortuary at all. The mortality for doctor's unit was much higher than the midwives unit. Ignaz Phillip Semmilweis, a Hungarian physician thought that doctors were carrying something harmful on their hands and he decided this should be washed off with chlorine solution. After this, there was a marked effect on patient mortality in that unit. This is the first historical evidence of hand hygiene being effective and essential.

What is hand hygiene?

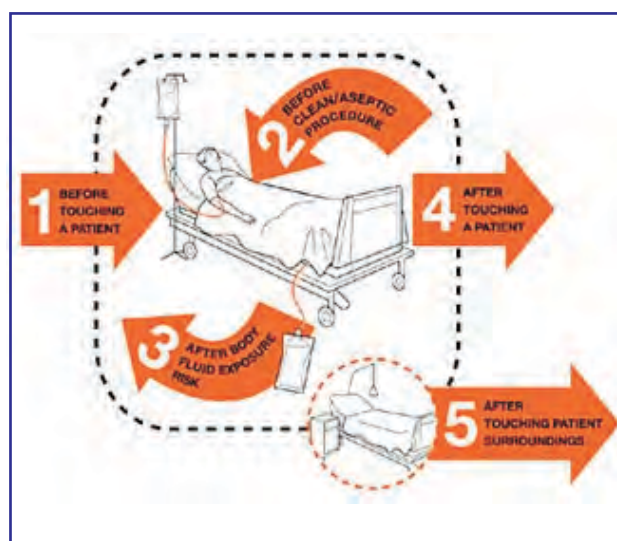
This is the act of cleaning hands for the purpose of removing all microorganisms and dirt.

Who should follow hand hygiene?

Any healthcare personnel who is involved in direct or indirect patient care needs to be concerned about hand hygiene and should be able to perform it correctly and at the right time.

When should one follow hand hygiene?

The 5 moments shown in the picture below need hand hygiene to be followed.





“Remember, clean hands are safe hands”

How does one follow hand hygiene?

There are two ways to clean your hands

1. Use alcohol based hand rub: When your hands are not visibly soiled. It is faster, more effective and well tolerated by your hands.

2. Use antiseptic soap solution and water: When performing any invasive procedure OR when hands are visibly dirty OR visibly soiled with blood or other body fluids OR before having or serving food OR after using toilet.

3. Can gloves substitute hand hygiene?

The use of medical gloves does not replace the

need for hand hygiene. Hand hygiene must be performed before and after using gloves.

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Preventive Dental Health Care– An Overview

Introduction

Scientific research, technological advances and better understanding of disease processes have contributed to dentistry's emergence from a reparative art towards a prevention oriented science. A plethora of questions come to one's mind when the concept of preventive dentistry is being dealt with. For example, WHAT is preventive dentistry? WHY is it important? WHICH is the target population? WHO is the provider? WHEN does one require such care? WHERE is the required care given? HOW is preventive dentistry practiced? This article will address these questions in brief while focussing on the clinical guidelines for the same.

Indian perspective

For our country with limited trained manpower and finances, early introduction of preventive measures is the only viable means to intercept increasing trend of dental caries.

The burden of disease in India in a nutshell is extremely high as indicated by National oral health survey 2004 (figures mentioned below)

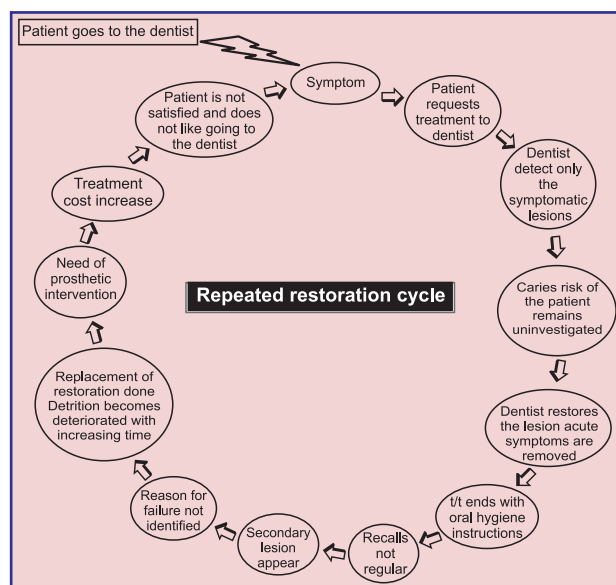
Discussion

- **What is preventive dentistry?** "The employment of all measures necessary to attain and maintain optimal oral health." It involves correction of risk conditions through targeted intervention.
- **Why is preventive dentistry important?** It achieves elimination of risk factors and long term maintenance of this health status. Caries control measures are performed as



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first step, solving the etiologic problem prior to the rehabilitative phase. If this order is inverted or first step neglected, failure is inevitable. This is best demonstrated by the "repeated restoration cycle"



National oral health survey 2004	5 years	12 years	15 years	35-44 years	65-74 years
Caries prevalence	51.9%	53.8%	63.1%	80.2%	85.0%

Every attempt must be made to support and achieve the 'Healthy People 2020' goals as follows:

- Reduce by 10%, the proportion of adults with untreated dental decay.
- Reduce by 10%, the number of children under 18 with untreated dental decay.
- Increase by 10%, the proportion of children from low-income families who received any preventive dental services during the previous year.

• **Which is the target population?** Individuals deemed at high risk for developing dental caries and other dental diseases. Various 'Caries Risk Assessment' tools are available in order to determine the same.

• **Who is the provider?** The primary service for all patients in dental practice must be prevention and only those that we cannot prevent, we must repair. In harmony with this philosophy, all dental practitioners and auxiliary personnel must be providers of preventive dental services. A Paediatric Dentist and a Public Health Dentist are specialized providers for the same.

• **When does one require such care?** Primarily carried out in the childhood to adolescent age groups; instils a positive dental attitude right from an early age. Certain conditions put adult and geriatric population at greater risk for oral diseases and preventive dentistry can be applied to these cases.

• **Where is the required care given?** Preventive measures can be implemented at a community level through drinking water fluoridation, in schools via dental check-up camps and school water fluoridation. However, a comprehensive, tailored, individualised chairside oral health preventive protocol for management of high dental caries risk cases in the dental office offers an ideal condition to conduct motivational activities.

• **How is preventive dentistry practiced?** This section describes the guidelines to oral preventive strategies from the antenatal phase through old age.

The perinatal period and anticipatory guidance

Oral preventive care for the expecting mother

- Identifying mothers with high levels of dental caries and poor oral health and educating them.
- Diet which includes adequate quality and quantity of nutrients for the mother-to-be and the unborn child.
- Comprehensive oral examination, dental prophylaxis, and treatment during pregnancy.
- Proper oral hygiene, using a fluoridated toothpaste, chewing sugar-free gum.
- Continued breast-feeding along with complementary foods for a period of one year or longer

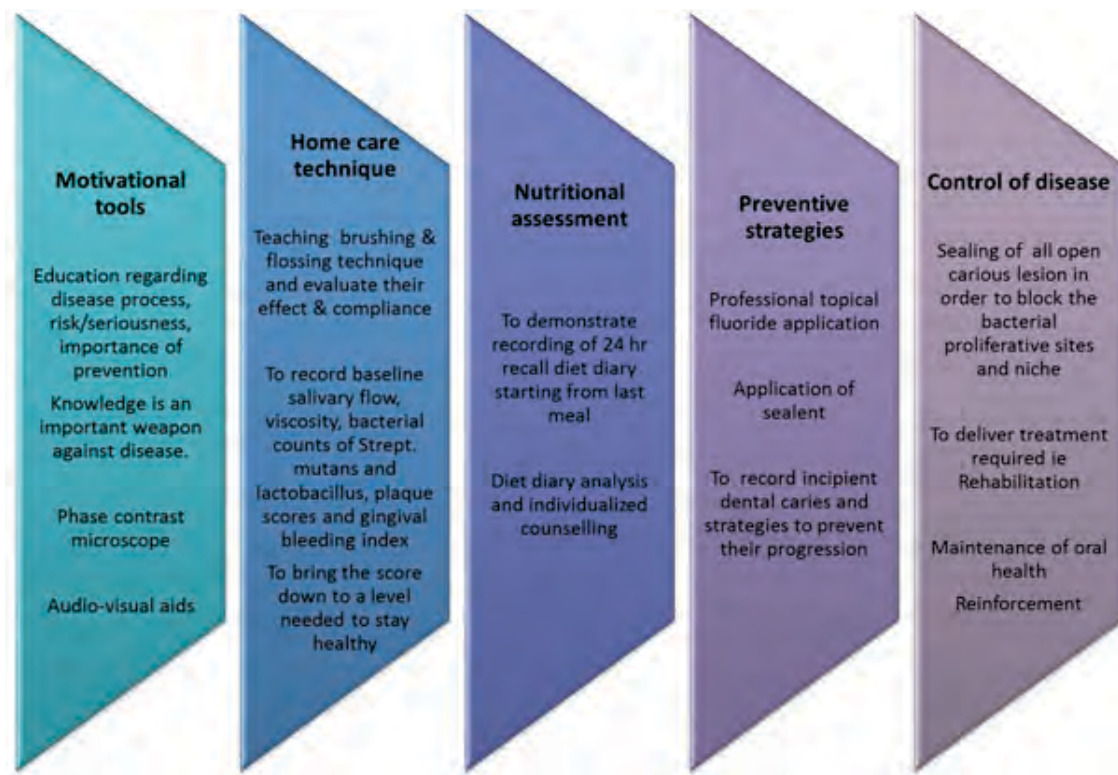
Infant oral preventive care

- Assessing the infant's risk of developing caries and determining a prevention plan providing anticipatory guidance.
- Fluoride varnish treatment if indicated.
- Injury prevention counselling.
- Counselling regarding teething- use of chilled teething rings and oral analgesics.

Oral preventive care for the child and adolescent

An overview of the components of a comprehensive preventive treatment protocol for children determined to be at high risk for dental caries is given below

Components of chair side preventive schedule



Scenarios requiring special attention

Primary Dentition	Mixed Dentition	Permanent Dentition
Severe early childhood caries – Comprehensive oral rehabilitation under preventive protocol	Newly erupted permanent teeth - Pit and fissure sealants, fluoride application	Newly erupted permanent teeth - Pit and fissure sealants, fluoride application
Premature loss of primary teeth-Space maintainers	Molar Incisor Hypomineralisation- Fluoride varnish application, pit and fissure sealants, frequent follow up	White Spot Lesions in Orthodontic Cases - fluoride application, remineralising agents
Deciduous molar hypomineralisation- Fluoride varnish application, pit and fissure sealants, frequent follow up	Premature loss of primary teeth-Space maintainers	Hormonal Changes – Oral prophylaxis
Dentinogenesis imperfect	Enamel hypoplasia- Fluoride application, remineralising agents	Dietary changes – Nutritional counselling

Management of dental patients with special health care needs

Individualized oral hygiene program that takes into account the unique disability of the patient.

- Caregivers should provide appropriate oral care when the patient is unable to do so adequately.
- Brushing with a fluoridated dentifrice twice daily, use of electric toothbrushes and floss holders
- Non-cariogenic diet
- Sealants, topical fluorides, using materials such as glass ionomers that release fluoride, chlorhexidine mouth rinse
- Anticipatory guidance about risk of trauma, mouth guard fabrication

Oral preventive care in adults

- *"The oral cavity is a mirror of the general health"*
- There are more than 125 health conditions that may affect or be affected by oral health, including cardiovascular disease, human papillomavirus (HPV) infection, HIV/AIDS, osteoporosis, obesity, and autoimmune disorders like rheumatoid arthritis.
- According to the CDC, adults with diabetes are almost twice as likely to have periodontitis as non-diabetic patients of equivalent ages.
- Preventive dental care becomes even more important in such cases.
- When combined with services provided by dental professionals, basic self-administered measures such as brushing with fluoride toothpaste, flossing, drinking optimally fluoridated water, sticking to a healthy diet, avoiding tobacco and excessive alcohol use, can all but eliminate decay.

Geriatric oral preventive care

The essential relationship of systemic disease and medication usage to oral health status is now better understood, with observed age related changes in gustation, mastication, swallowing capability and salivary gland function etc.

With the ability to better identify those elders at highest risk for oral problems we can better target our preventive and therapeutic interventions aimed at the following:

- Nutritional counselling
- Palliative and caries preventive treatment of xerostomia
- Alveolar ridge preservation

Conclusion

The concept of preventive dentistry and its implementation in routine practice is a keystone for reducing the burden of disease in the community. Healthcare professionals must be cognizant and proactive for delivering the same in order to progress towards a healthy society.

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Positive Psychology: A Path Towards Mental Wellbeing

A lot of work has gone into understanding the etiology of mental illnesses with the purpose of “fix-what-is-wrong”. Over the past century, there has been an explosion in research on the root causes of psychopathology. In particular, we have learned a great deal about the genetics of mental disorder, for example linking specific genes to the regulation of dopamine and serotonin activity. A number of environmental stressors such as parental divorce, physical and sexual abuse, psychosocial and environmental stressors along with genetic interactions have been identified to cause various mental illnesses.

However, it is believed that even persons who carry heavy psychological burden, want more than just relief of their suffering. They want contentment, satisfaction, joy from life and not just less sadness and worry. People strive for meaning and purpose in life which does not come automatically by simply removing suffering.

Thus a new approach of 'build-what-is-strong' can effectively supplement the traditional approach of 'fix-what-is-wrong'.

'Positive Psychology', introduced as an initiative of Martin Seligman in 1998, carries this new approach of 'build-what-is-strong' as its core ideology. It is a scientific study of positive experiences, positive individual traits and the institutions that facilitate their development. The field of positive psychology focuses on optimizing functioning and wellbeing so as to go beyond merely alleviating suffering. In fact, stimulating positive emotions and building one's strength (character traits) may itself alleviate suffering.

Positive psychology defines 'wellbeing' as a process over and above the absence of depression, anxiety and anger. It asks for more serious consideration of the person's intact faculties, ambitions, positive life experiences



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and strength of character and how they can be used to buffer against disorders.

The subject matter of positive psychology has three paths towards achieving “wellbeing” which are also known as the three lives.

- 1) **Pleasant life** is a life that maximizes positive emotions such as feelings of contentment, satisfaction, minimizing pain and negative emotions.
- 2) **Engaged life** which consists of using positive individual traits, strengths of characters (valor, leadership, kindness, capacity to love, etc) and talents to maintain a flow. A life led around these traits comes close to what Aristotle called the “good life.”
- 3) **Meaningful life** which entails belonging to and serving positive institutions. Attachment to and service of something larger than oneself. These can be strong family or communities, democracy etc. Thus a life led in service of a positive institute is a meaningful life.

The treatment modalities in positive psychology work towards bringing more pleasure, engagement and meaning into the client's lives and not just reducing depression, anxiety and anger.

Research has shown that positive emotions cause negative emotions to dissipate more rapidly and they help individual find positive meaning in stressful situations. Research also states that resilient individuals experience more positive emotions which acts as buffer from stress. Stimulating positive emotions and using positive strengths towards a meaningful life leads to personal wellbeing.

Thus, positive psychology teaches to value subjective experiences of wellbeing, contentment and satisfaction (from past); hope and optimism (for future); and flow and pleasure (from present). At individual level, it teaches to appreciate and engage positive traits such as capacity to love, courage, interpersonal skills, aesthetic sensibilities, perseverance, forgiveness, originality, wisdom, high talent, etc. At group level, it teaches civic virtues and moves individuals towards being better citizens with responsibility, nurturance, altruism, civility, moderation, work ethics etc.

In conclusion, positive psychology paves the way towards prevention of mental

illness by using good emotions and personal character strengths, to engage and maintain flow while adding meaning to life and personal wellbeing.

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Penetrating Ocular Trauma: A Case Report

Dr. Bhagyashree Ingle, Dr. Sayali Bhedasgaonkar, Dr. Snehal Nadkarni
Dept. of Ophthalmology,
BARC Hospital

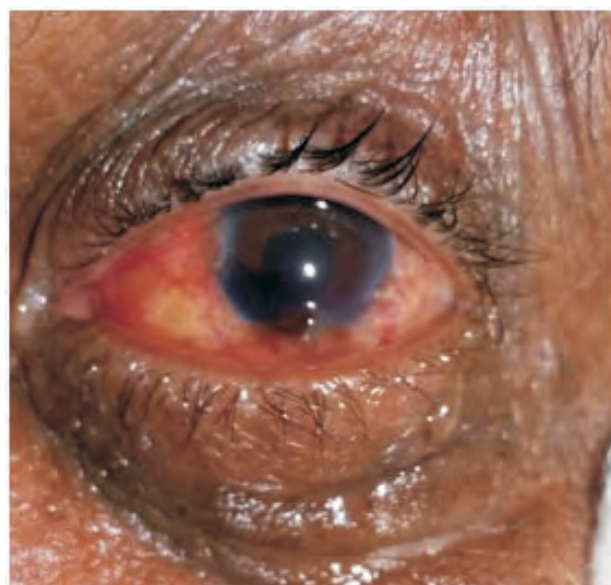
Introduction:

Despite the eye being surrounded by orbital bones and protective mechanisms such as the blink reflex, it is vulnerable to trauma. About half a million people in the world are blind as a result of eye injuries. About 30-40% of monocular blindness is due to ocular trauma [1, 2]. About 38-52% of all cases presenting to ophthalmic emergency rooms are ocular trauma and 0.9-1.8% of them need to be admitted due to severity of the damage [3].

Therefore, it is important to diagnose the type of injury at the time of presentation, for the subsequent management. Herein we describe a case of penetrating ocular trauma and its management.

Case presentation:

A 69 years old male, presented to the BARC emergency department with complaints of sudden painful decrease in vision of the left eye following accidental injury with an arrow made of a broom stick by his grandchild, at his residence two hours back.



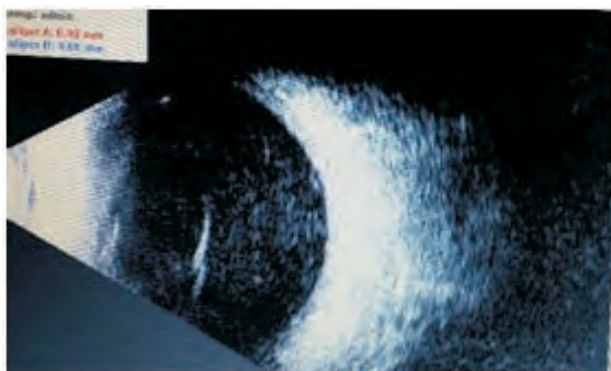
Dr. Bhagyashree Ingle

Patient was a known case of diabetes mellites, well controlled with oral hypoglycemic drugs. No other significant personal or family history was present. On examination, patient's general condition was fair and his vitals were stable. On Ophthalmic examination, his vision in right eye was 6/6 and in left eye there was perception of light. Detailed slit lamp examination of the left eye revealed intense circumcorneal conjunctival congestion with an irregular sclero-corneal wound at 6 O'clock limbal position, sealed partially with a tuft of prolapsed iris tissue and a thin wick of vitreous protruding from the open wound. Cornea was found to be diffusely hazy due to stromal edema with a formed blood clot in the inferior half of the anterior chamber. The anterior chamber had 4+ cells activity along with fibrinoid aqueous formation. At 6 to 8 o'clock infero-nasally, there was iridodialysis with semidilated fixed pupil not reacting to light, director consensual. A PCIOL was seen hazily with no view of the fundus.

Clinical findings of the right eye was within normal limits.

Investigations:

No metallic intra ocular foreign body was found in radiographic imaging.



A gentle B scan ultrasonography was performed which showed multiple vitreous mobile echoes suggesting of vitreous haemorrhage without any evidence of retinal detachment or IOFB.

Systemic blood sugars were monitored.

Management:

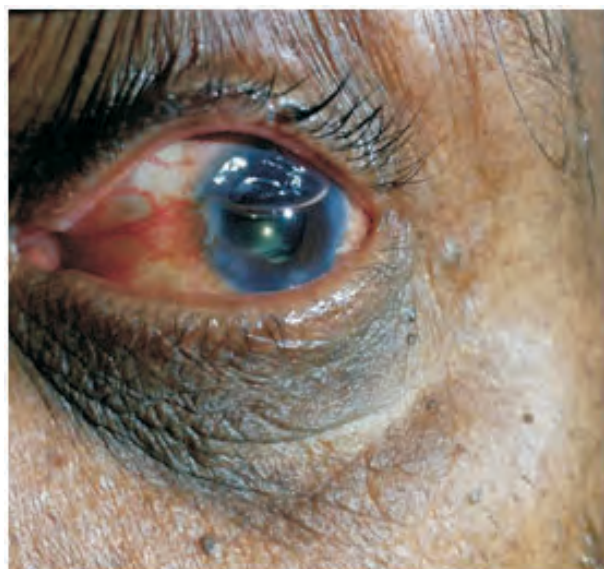
Patient was admitted and started on frequent topical steroids and antibiotics eyedrops with cycloplegic eyedrops. His eye was kept guarded with an eye shield with instructions of complete bedrest and head elevation. Systemic antibiotics and fibrinolytic medications were started.

The patient was taken for wound repair with anterior chamber wash and the anterior vitrectomy under extremely guarded visual prognosis.

On follow up visit after a week, the vision in the left eye improved to 6/18 partial with quiet cornea and anterior chamber and in place PCIOL. The vitreous haemorrhage was resolving with faint view of fundus. B scan ruled out evidence of retinal detachment. The patient has been advised to continue topical management and regular follow ups.

Discussion:

Ocular injury is classified into blunt or penetrating. Penetrating injury involves intrusion into the injured tissue by the offending agent and it needs an emergency attention. It may be associated with corneo-



scleral tear, hyphaema, damage to the lens and other intraocular structures, and may have potential complications like endophthalmitis, secondary glaucoma, complicated cataract, ocular siderosis, and sympathetic ophthalmia.

Patients presenting with ocular trauma require careful consideration. The key issues to address are the visual potential of the injured eye and the risk of sympathetic ophthalmia. The incidence of sympathetic ophthalmia is approximately 2–5 in 1000 cases of open globe injuries.

Sympathetic ophthalmia is a rare, bilateral granulomatous panuveitic condition following trauma or surgery to one eye, believed to be a T cell mediated autoimmune response against choroidal melanocytes. The inciting eye is the one sustaining the injury or surgery and the fellow eye is known as the sympathising eye. It usually presents within 4–8 weeks of trauma, 90% of cases presenting within 1 year. Cases have been described several years after the injury also. Anteriorly it manifests as uveitis with mutton-fat keratic precipitates, while posteriorly it is often accompanied by thickening of the uveal tract and Dalen-Fuchsnodules (small depigmented nodules at the level of the retinal pigment epithelium).

The patient with injury should be attended immediately, assessed thoroughly. Medico-legal aspects should be considered.

Detailed examination of the patient to rule out other areas of trauma should be carried out and vitals should be monitored.

Locally, eyes and adnexa are evaluated in detail for the extent of injury and evidence of any intraocular foreign body, preferably with photographic evidences. The Seidel test confirms or rules out cases of full thickness injuries to the anterior segment. In the Seidel test a moistened fluorescein strip is painted over the suspected injury site. The orange fluorescein changes to apple green if there is a wound leak, and a stream of aqueous can be observed with cobalt blue light.

If there is a poor view of the fundus, one should consider a gentle B-scan ultrasonography to examine integrity of the posterior tissues like retina and optic nerve. Orbital radiographs or computed tomography (CT) scanning should be done if a foreign body is suspected. Magnetic Resonance Imaging (MRI) is contraindicated in cases involving a suspected metallic foreign body.

The eye should be protected with an eye shield while awaiting definitive treatment. Antibiotics are started to control the infections. Cycloplegic agents are given to

relax ciliary spasm and reduce the inflammation. Anti-inflammatory medications are started.

The patient should be taken for the surgical repair to save the visual function and to avoid infection and further deterioration, as early as possible.

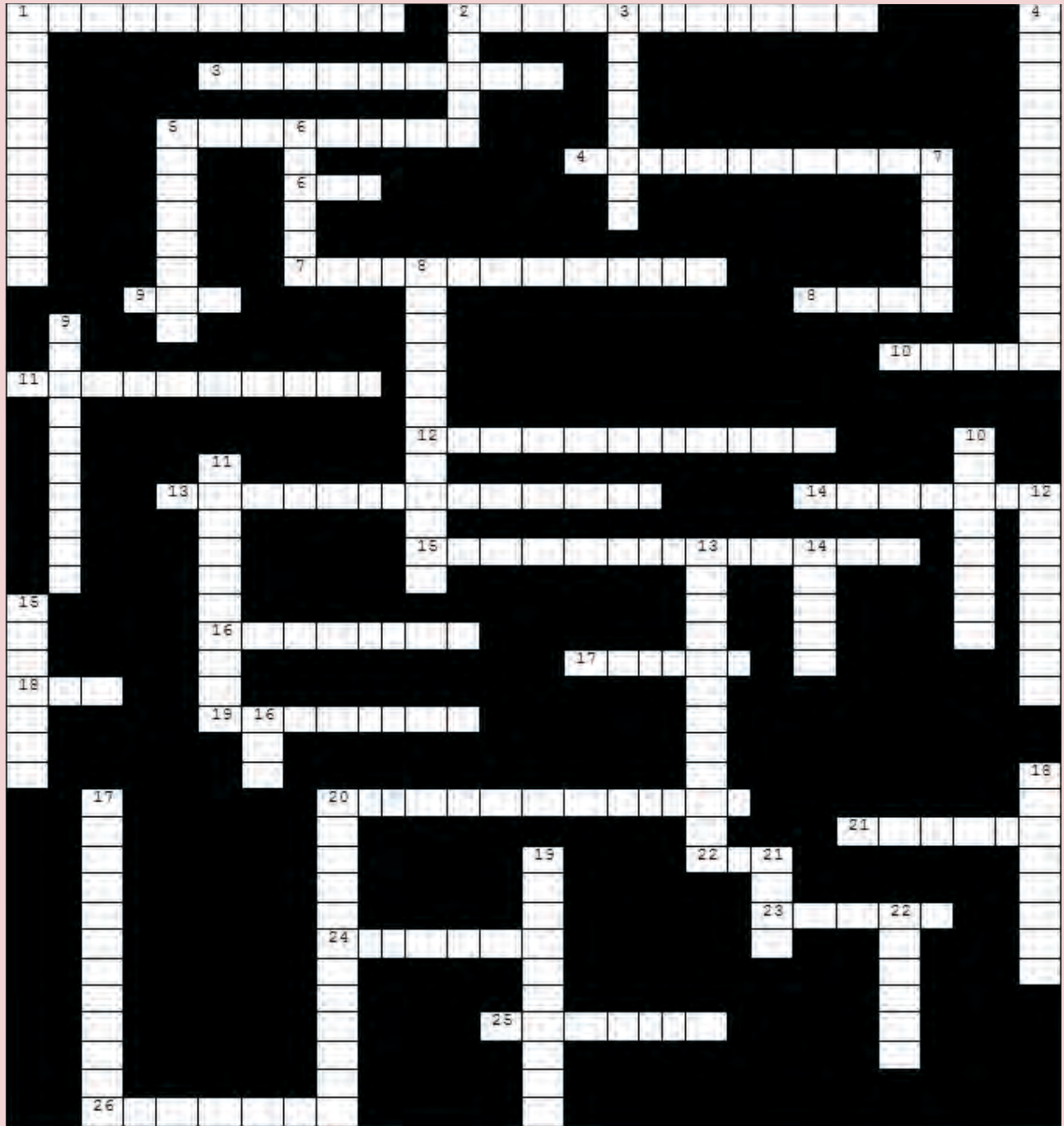
Conclusion:

It is very important to protect eyes from any sort of trauma. The children should be prohibited for the usage of harmful toys. Proper assessment and timely management is needed to save the visual function of the eye.

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CROSSWORD



CROSSWORD CLUES

CLUES

DOWN

1. A drug used for TB treatment(10)
2. Tenth cranial nerve (5)
3. Artery which supplies blood to heart (8)
4. Opening at the base of skull for spinal cord to pass (7,6)
5. Dissociative anesthetic drug (8)
6. Deficiency of hemoglobin (6)
7. Deadly disease transmitted by bites of infected mammals especially dogs (6)
8. Endoscopic viewing of the insides of the uterus (12)
9. Muscles at the front of the thigh (10)
10. Collar bone (8)
11. Cartilage flap at the top of the voice box (10)
12. Outside the Duramater (8)
13. CNS disorder that affects movement (12)
14. Pathogen that can replicate only inside a living cell (5)
15. Shoulder blade (7)
16. Syndrome of extra electrical pathway in the heart, Acronym (3)
17. Surgical removal of foreskin (12)
18. High blood sugar disease (8)
19. Hormone secreted by the adrenal glands for 'fight or flight' response (10)
20. High Blood Pressure (12)
21. Circular structure that controls pupil size (4)
22. Duct that carries urine from kidney to bladder (6)

ACROSS

1. Tough sheath of muscles and tendons around the shoulder joint (7,4)
2. An enlarged, swollen, twisted vein (8,4)
3. Food pipe (10)
4. Sac which stores bile (4,7)
5. Inflammation of cornea (9)
6. Electromyography, Acronym (3)
7. Canker sore synonym (8,5)
8. Part of brainstem that connects thalamus to medulla oblongata(4)
9. International Normalized Ratio, Acronym (3)
10. Blood plasma excluding fibrinogens (5)
11. Muscles at the back of the thigh (9)
12. Exomphalos, synonym (12)
13. Surgical operation to remove vermiform appendix (14)
14. End product of anaerobic glucose metabolism (7)
15. Placenta covering the uterine outlet (8,6)
16. Eardrum (8)
17. Narrow lower end of uterus (6)
18. Smear test for cancer cervix(3)
19. H1N1 (5,3)
20. Congenital abnormality of urethral opening (13)
21. Water retention in the body (6)
22. Magnetic Resonance Imaging, Acronym (3)
23. Anvil shaped bone in the ear (5)
24. Bladder neck triangle (7)
25. Simple sugar (7)
26. Functional unit of kidney (7)

Please email your answers to pulse@barc.gov.in. Names and photographs of the first five entries with correct answers will be published in the next issue of 'Pulse'

ACADEMIC ACHIEVEMENTS



Dr. Uday Thakre, Medical Officer, working at Dombivli dispensary completed his post graduate degree, Masters in Medicine (Family Medicine), from CMC VELLORE and M.G.R. Health University, Chennai, in year 2018.



Paper Presentations

1) A paper on 'Eye Donation awareness and willingness among patients attending ophthalmology OPD at Goa Medical College & Hospital' by Dr. Ankita K Sinai Bhangui & Dr. Ugam Usgaonkar, was presented by: Dr. Ankita K Sinai Bhangui at Eye Advance conference, Renaissance hotel, Powai, on 3rd June 2018.

DNB students who passed final DNB exam in 2019

Congratulations!!



Dr. Veena Karkhele
Dept. of Ophthalmology



Dr. Yogesh Motwani
Dept. of Psychiatry



Dr. Sanjog Mekewar
Dept. of Anaesthesia



Dr. Sravanti Sudapally
Dept. of Anaesthesia



Dr. Deepali Gotey
Dept. of Anaesthesia

AWARDS



Dr. Prashant Pattnaik, Panel Urologist at BARC hospital was awarded 'Economic Times Inspiring Urologist of India' on the occasion of Doctor's Day, 29th June 2019. A book with his biography was released by Lieutenant Governor of Puducherry **Ms Kiran Bedi**.



Dr. Rohan Jadhav (Medicine Unit), **Dr. Yogesh Shejul** (Medicine Unit), **Dr. Vaishali Jadhav** (Obstetrics and Gynaecology Unit) and **Dr. Santosh Kumar** (Paediatrics Unit) participated in the medical camp arranged on 8th December, 2018 for local populations of SMF Project area

AWARDS



Shri Kumar Vaibhav, LDC of OYC dispensary, received 2nd prize for slogan competition during Swachchhata Pakhwada-2019.



Shri Ashok Pardhi, Sr. Work Assistant 'A', OYC dispensary, received merit certificate and cash award during Swachchhata Pakhwada-2019.



Smt. Gino Stanly, Nurse/C, secured 1st prize in both 'Essay writing' and 'English elocution' competitions, conducted by JNF, Kalyan, Maharashtra.



Dr. Pratibha Toal, Head, Anaesthesia Unit, completed Ladakh half marathon of 21km in 3hrs 32minutes on 8th September 2019.

Vaccination Schedule

Age	Vaccine
Birth	BCG Hep-B 1, bOPV 0
6 week	Pentavalent, IPV/ bOPV-1 PCV1* Rotavirus 1*
3 month	Quadrivalent, IPV/bOPV-2 PCV2* Rotavirus 2*
4.5 month	Quadrivalent, IPV/bOPV3 PCV3* Rotavirus 3*
6 month	HepB 3 Influenza 1st dose 2nd dose
9 month	MMR1 Typhoid TCV
12month	Hepatitis A1*
15 month	MMR2 Chickenpox1
16-18month	Quadrivalent Booster IPV/ bOPV Booster PCV booster*
2Yr	Typhoid(Polysaccharide, Every 3 yrly)* Hepatitis A2*
4.5-5 Yr	DPT Booster 2 MMR3 Chickenpox 2*
10 Yr	Tdap/Td (Adult booster)*
10-14 Yr (2 doses before 15yr)	HPV 1st dose 2nd dose 3rd dose



Dr. Santosh Kumar,
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*Rotavirus, PCV, Chickenpox, Hepatitis A, Typhoid TCV, Tdap, are optional vaccine

Ref: Indian Association of Paediatricians(IAP)2018-19



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