

For Circulation to Members



# MAMCOS

*e-Synergy*

Maulana Azad Medical College Old Students Association's e-News Letter

President

**Dr. Sanjay Sood**  
M: 9811683807

Treasurer

**Dr. M.L. Sachdeva**  
M: 9818015188

Secretary

**Dr. Ashwini Dalmiya**  
M: 9811542055



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Room : 309, 3rd Floor, Main College Building, Maulana Azad Medical College,  
Bahadur Shah Zafar Marg, New Delhi-110002 Ph.: 23237029, Telefax: 91-11-23237029  
email:mamcos309@gmail.com, Website: www.mamcos.org

**e-Synergy**



## President's Pen...

In the Diamond jubilee Year of MAMC I am privileged and honoured to address you as the President of MAMCOS. Dear Friends MAMCOS is a unique Alumnus Organization which has grown in great strength over the years on the foresight and hard work of its founders, Past presidents and dedication of its dynamic Executive members. Today the Ex Students are the proud Members of MAMCOS.

My Journey at MAMC started almost 40 years ago when I entered the Portals of this hallowed Institution as a fresher. I have spent the most memorable years of my life in this Institution first as a student and then thanks to our Alumni body MAMCOS. I am humbled by the privilege given to me to serve this Association with other Executive Members.

MAMCOS gives us the privilege of keeping in touch with our Alma Mater and its Teachers and the students who pass through these gates every year. Every year we add to our strength as a new batch of graduates join MAMCOS. This year we have more than 200 graduates as new Members and I welcome them to our fold. Through MAMCOS our college has the unique privilege of organising a get together at least twice a year for the alumni where we meet our Maulanian friends and renew our ties with them.

This year we have celebrated MIDCON with the batch of 1991 and they will be celebrating their Silver Jubilee next year. They helped in putting up a great MIDCON function this year. My team and I look forward to working with them again in their Silver jubilee year.

On behalf of my team I would like to thank our Patron Dean Professor Dr Sanjay Tyagi for all the Cooperation and help extended to the MAMCOS for the MIDCON function and last Annual Day Function.

You will be pleased to know that last year the first batch of MAMC celebrated its Platinum Jubilee. This year the Golden Jubilee batch of 1969 is looking forward to their Reunion. The Ruby batch of 1975 have also started their preparations and the batch of 1990 celebrates its Silver Jubilee. My team and I are here to assist you in your celebrations and hope to make MAMCOS Annual December 2019 function a great show.

We have added to our strength but every year we lose some of our stalwarts. My Deepest Condolences to the families of those we lost. You are still part of our MAMCOS family and we will be there if you need us.

Many of our MAMC graduates have brought Laurels to our alma mater. We can, through the aegis of MAMCOS use the experience of these stalwarts to guide and assist. My aim as President is to bring together more and more alumni in its fold for Fellowship and then together we are a Powerful Voice and can help to find many healthcare solutions for the Common man of India. Being a Premier Institute, people of this country look forward to Great Ideas from its Ex Students and their Execution for the Welfare of the Community.

Thank You once again MAMCOS members and Good Wishes to you and your families.

**DR. SANJAY SOOD**  
President





## Secretary's Pen...

Dear friends,

I am pleased to present E-bulletin of MAMCOS after a gap of couple of years. We at MAMCOS are trying to bring some changes including the website which was inaugurated by our patron Dr. Sanjay Tyagi, Dean MAMC.

I sincerely hope that bulletin is up to your expectations. Waiting for your valuable feedback.

Bye

**Dr Ashwini Dalmiya**  
Secretary





Respected Seniors and Friends,

Welcome to "The MAMCOS e-Synergy", the second edition of the re-launched magazine of the Maulana Azad Medical College Old Students Association. If you're thinking "only at MAMC would they name a magazine similar to the annual fest Synapse," you're doubtless right! The MAMCOS e-Synergy. The name is, to be sure, a nod to the most distinctive feature of the MAMCes unique flavor of working with synergy.

MAMCOS has come a long way since 1971, the purpose of the newsletter is to bring the global community of the MAMC old students closer.

Future issues of the e-Synergy are planned to highlight the ongoing events on the MAMCOS front globally. Meanwhile, this issue is focused on pediatrics and recent developments, contributors are four pediatricians from Delhi. This goes with the mission of MAMCOS, "to percolate the current medical knowledge among fellow members".

I would like to thank Secretary MAMCOS Dr. Ashwini Dalmiya for helping me pull this through. I express my considerable appreciation to all the authors of the articles in this magazine. These contributions have required a generous amount of time and effort. It is this willingness to share knowledge, concerns and special insights with fellow beings that have made this magazine possible.

Thank you all!!

**Dr. Vipul Jain**

1991 Batch

Practicing Pediatrician

New Delhi

drvipuljain@gmail.com





## From the Desk of Editor

Respected Seniors and Dear Friends ,

It's a matter of immense pleasure and pride to write this column for our journal. As we celebrate this achievement, it is important not to lose sight of what helped us reach this milestone- Our commitment to excellence, our belief in our mission and the collective hard work of the MAMCOS family.

Every day, across every dimension of not only our institute but all across the globe we strive for excellence in all that we do. At the same time, we remain grounded in our belief that medicine is a force for good and that we, as a community, have a responsibility to carry that mission forward.

I believe MAMCOS as an organization can move forward, I believe, with taking two steps.

First, we need to look inward and question our core purpose as individuals and organisation.

We might ask ourselves:

- Have I aligned my organisation's goals with what society needs?
- What am I doing to protect the health of the community ?
- How am I enabling equal opportunity for everyone and involving all in our effort ?

Second, we need to study and learn from the our leaders that are already modeling new visions for the medical society and serving as a force for good. MAMCOS is fortunate to have many of these exemplary individuals within our own alumni community.

This edition of the journal would not have been possible without the dedicated efforts of Dr. Ashwini Dalmiya and Dr. Mandeep Singh.

My best Wishes,

Dr Bharat Gopal  
Editor



## MAMCOS OFFICE BEARERS 2019-2020

Designation	Name	MOB	EMAIL
Patron	DR.SANJAY TYAGI (Dean, MAMC)	01123231478	deanmamc2012@gmail.com
President	DR.SANJAY SOOD	9811683807	drsoods@hotmail.com
Past President	DR.SUNIL K SATRAWAL	9891043708	shivasat@rediffmail.com
Vice President	DR.MUKESH BHATIA	9968288832	contactdrbhatia@gmail.com
Vice President	DR.RAJESH MAKASHIR	9811153427	makashirlab@yahoo.in
Vice President	DR.YASH PAL RANA	9999105595	yashdoc@yahoo.com
Secretary	DR.ASHWINI DALMIYA	9811542055	ashwinidalmiya@yahoo.com
Jt. Secretary I	DR.B.K. MEHTA	9811011028	bkmehta3@hotmail.com
Jt. Secretary II	DR.S.P. CHOUDHARY	9717630548	ndlsnrch@gmail.com
Jt. Secretary III	DR.KAILASH C. KUKREJA	9810464749	drkckukreja63@yahoo.com
Jt. Secretary IV	DR.NIKHIL DHINGRA	9871232327	nikhildhingra@hotmail.com
Treasurer	DR.M.L. SACHDEVA	9818015188	drmlsachdeva@yahoo.com
Editor	DR.BHARAT GOPAL	9899072000	drbgee@hotmail.com
Asso. Editor	DR. MANDEEP SINGH	9650047722	dr.singhmj@gmail.com
Jt. Editor	DR.AJAY KUMAR GUPTA	9810130404	muskanclinic102@gmail.com
P.R.O. Overseas	DR.USHA K. BAVEJA	9811636342	ubaweja@gmail.com
P.R.O. India	DR.N.P. SINGH	9868446621	nanu_singh@yahoo.com
Faculty Member	DR.PRADEEP KR DABLA	9868524455	pradeep.dabla@gmail.com
		9643308236	
Faculty Member	DR.SUSHANTO NEOGI	9968604384	
Faculty Member	DR.SANDEEP GARG	9968604280	
Permanent Invitees	DR.POONAM GULATI	9810143928	pgbe4c@yahoo.com
Permanent Invitees	DR.VIJAY SHARMA	9818121030	docvijaysharma@yahoo.in
Permanent Invitees	DR.RICHA DEWAN	9810301848	rdewan3@gmail.com
Permanent Invitees	DR.NARESH CHAWLA	9811035060	dr_nareshchawla@hotmail.com
Permanent Invitees	DR.SATPAL	9899811035	dr_satpal@yahoo.co.in

# MAMCOS PAST PRESIDENTS

<b>YEAR</b>	<b>NAME</b>	<b>MOBILE</b>	<b>EMAIL</b>
1971-1972	Dr. P.S. Saharia	9810085682	neena.saharia@outlook.com
1972-1986	Dr. L.D. Sota	9312876694	drlidsota@yahoo.co.in
1987-1988	Dr. R.P. Gupta		
1989-1990	Dr. Y.P. Munjal	9212002131	ypmunjal@yahoo.com
1991-1992	Dr. Ashok Vaid	9810073036	avaid2009@gmail.com
1993-1994	Dr. Vijay Agarwal	9818766000	vijayagar@gmail.com
1995-1996	Dr. Narottam Puri	9818198811	narottam.puri@fortishealthcare.com
1997-1998	Dr. Vinay Agarwal	9811050403	vinayaggar@yahoo.com
1999-2000	Dr. Upendra Gami	9811102080	upengami@gmail.com
2001-2002	Dr. Savita Puri	9810053770	purisavita@gmail.com
2003-2004	Dr. V.K. Monga	9810118256	drvkmonga@yahoo.com
2005-2006	Dr. R.K. Bakshi	9811112006	rbakshi2004@hotmail.com
2007-2008	Dr. Usha K. Baveja	9811636342	ubaweja@gmail.com
2009-2010	Dr. G.S. Grewal	9811078010	grewal247@yahoo.co.in
2011-2012	Dr. N.P. Singh	9868446621	nanu_singh@yahoo.com
2013-2014	Dr. Prem Aggarwal	9810203358	premanita@hotmail.com
2015-2016	Dr. G.S. Grewal	9811078010	gsgrewal247@yahoo.co.in
2017-2018	Dr. Sunil Satrawal	9891043708	shivsatrawal@gmail.com

# ACTIVITY IN CHILDREN AND ITS HEALTH BENEFITS

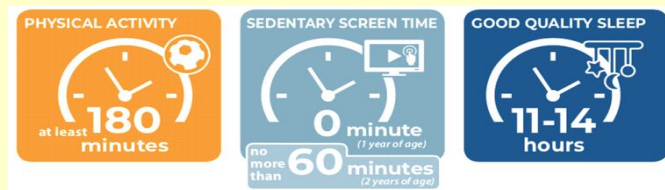
**Dr. VINEET SEHGAL**

MD, Pediatrics, MAMC 1992-95  
Consultant Pediatrician,  
Max Shalimar Hospital, New Delhi  
Email: Vineetdoc@hotmail.com



Recent recommendations by WHO (1), regarding physical activity and sleep in children less than 5 years, have divided this group into infants (less than 1 year), children 1-2 years and 3-4 years of age: Infants should be physically active several times a day in a variety of ways, particularly through interactive floor-based play; more is better. For those not yet mobile, this includes at least 30 minutes in prone position (tummy time) spread throughout the day while awake; Children 1–2 years and 3-4 years of age should spend at least 180 minutes in a variety of physical activities at any intensity, including moderate- to vigorous-intensity physical activity, spread throughout the day; more is better. As for sleep Infants should have 14–17 hours (0–3 months of age) or 12–16 hours (4–11 months of age) of good quality sleep, including naps; Children 1–2 years of age should have 11–14 hours of good quality sleep, including naps, with regular sleep and wake-up times; Children 3–4 years of age should have 10–13 hours of good quality sleep, which may include a nap, with regular sleep and wake-up times.

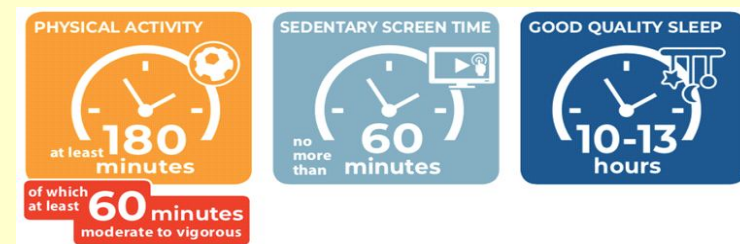
## INFANTS



## CHILDREN 1-2 YEARS OF AGE



## CHILDREN 3-4 YEARS OF AGE



The recommended physical activity for children 5–17 years old to improve cardiorespiratory and muscular fitness, bone health, cardiovascular and metabolic health biomarkers and reduce symptoms of anxiety and depression is an accumulation of at least (60 minutes of moderate- to vigorous-intensity physical activity each day, through play, games, sports, transportation, recreation and physical education, in the context of family, school and community activities. Amounts greater than 60 minutes would provide additional health benefits and vigorous-intensity activities, including those that strengthen muscle and bone, should be incorporated at least three times per week.

Early childhood (under 5 years of age) is a period of rapid physical and cognitive development and a time



during which a child's habits are formed and family lifestyle routines are open to changes and adaptations. Lifestyle behaviors developed in early life can influence physical activity levels and patterns throughout the life course (2). Active play and opportunities for structured and unstructured physical activity can contribute to the development of motor skills and exploration of the physical environment.

For the WHO guidelines, a systematic review of the literature was done in 2017. For the critical outcomes, there was moderate quality evidence for cognitive development, low-quality evidence for psychosocial health, motor development and adiposity and very low-quality evidence for fitness. The overall quality of evidence was rated as very low using the GRADE framework. The findings were that physical activity was associated with improved motor and cognitive development, psychosocial and cardio-metabolic health in randomized and non-randomized intervention studies and with improved motor development, fitness and bone and skeletal health in observational studies. Moderate- to vigorous-intensity, vigorous-intensity, and total physical activity were beneficially associated with several health indicators and although it was not possible to determine the most favorable frequency or duration of physical activity, more physical activity appeared to be better. In infants less than 1 year of age, 30 minutes per day of prone position was favorably associated with health indicators (1).

To meet daily physical activity time recommendations, particularly in children, the pattern of overall 24-hour activity needs to be considered, since the day is made( up of sleep time, sedentary time and light-, moderate- and vigorous-intensity physical activity. Sedentary behaviors, whether riding motorized transport rather than walking or cycling, sitting at a desk in school, watching TV or playing inactive screen-based games( are increasingly prevalent (3) and associated with poor health outcomes (4). Sleep time is also known to influence health outcomes and short sleep duration is associated with overweight and obesity in childhood (5) and adolescence (6), as well as mental health issues amongst adolescents (6). Chronic insufficient sleep up to 7 years of age has been associated with increased adiposity in later childhood and adolescence (7).

Twisk (8) reviewed the literature examining the influence of adolescent physical activity on adolescent health status. They concluded that there were inconsistent findings regarding the relation between activity and lipid levels, blood pressure and glucose levels; it was consistently positively associated with high-density lipoprotein levels, cardiorespiratory fitness, bone mass, and self-esteem; and there was a consistently negative association with adiposity and stress levels. These findings have also been supported by other studies and indicate that health outcomes associated with physical activity, along with physical activity behavior itself, track over time, underscoring the importance of physical activity during childhood for both immediate and long-term health (9).

Hillman and colleagues<sup>1</sup> examined the effects of physical activity on fitness, brain function, and cognitive function in children aged 7 to 9 years. At the end of the 9-month intervention, the physical activity group showed greater aerobic fitness than did the wait-list control group. The physical activity group also demonstrated greater attentional inhibition and cognitive flexibility. On EEG assessments, only the physical activity group showed a larger P3 amplitude (indicative of greater attention) and a faster P3 latency (indicative of faster processing speed). Children who attended a greater number of physical activity sessions had more changes in these brain activity measurements (10).

Childhood physical activity may influence adult health status in three ways: i) Directly influences adult health outcomes (e.g., bone mineral density); ii) Results in positive health outcomes that track into adulthood (e.g., BMI tracking from childhood to adulthood); and iii) Physical activity behavior tracks from childhood to adulthood (11).

Worryingly, there is an epidemic of obesity happening at the moment worldwide. Children do not seem to be getting enough and appropriate physical activity, have increasing sedentary time and not enough good quality sleep time. It is time for all stakeholders: parents, healthcare personnel, school authorities, administrators and children themselves to be alive to the problem and take urgent remedial measures.

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# AUTISM SPECTRUM DISORDER

by Dr. Ashish Sahani,  
MBBS 1987 Batch DCH, DNB  
Developmental Pediatrician,  
Sri Balaji Action Medical Inst. Paschim Vihar  
Email: ashishsahani@gmail.com



## Q1. What is an autism spectrum disorder?

A1. Autism spectrum disorder or ASD, in short, is a developmental disorder that affects communication and behavior. Although autism can be diagnosed at any age, it is said to be a developmental disorder because symptoms generally appear in the first two years of life.

## Q2. Why autism is called a spectrum disorder?

A2. Autism is known as a spectrum disorder because there is a wide variation in the type and severity of symptoms people experience.

At one end are kids with very poor social interaction, repetitive movements and speech delay and making no eye contact.....and other ends are kids with very few symptoms, which are present occasionally and observed fleetingly.

## Q3. What is the incidence of the disease in the world?

A3. The Centre for Disease Control and Prevention estimated the prevalence in the US at 1 in 59 as compared to 1 in 682 years ago.

The ratio of boys to girls was between 3.5-4:1

In one important study in children done in Chandigarh, the prevalence of 2.25 per 1000 children Indian was found.

## Q4. What are the causes and risk factors?

A4. While the exact causes and risk factors are not known, research suggests that genes can act together with influences from the environment to affect development in ways that lead to ASD. Known risk factors are:

Having a sibling with ASD

Having older patients

Very low birth weight

Having certain genetic conditions like down's syndrome, Rett syndrome, fragile X syndrome

## Q5. What are the diagnostic criteria for ASD?

A5. In 2013, the American Psychiatric Association, released the DSM-5 criteria for ASD as follows:

1. Persistent deficits in social communication and social interaction across multiple contexts as manifested by the following:

a) Deficits in social-emotional reciprocity

b) Deficits in nonverbal communicative behaviors used for social interaction

c) Deficits in developing, maintaining and understanding relationships

2. Restricted, repetitive patterns of behavior, interests or activities, as manifested by at least two of the following, currently or by history.

a) Stereotyped or repetitive motor movements, use of objects or speech

b) The insistence of sameness, inflexible adherence to routines or ritualized patterns of verbal or nonverbal behavior

c) Highly restricted, fixated interests that are abnormal in intensity or focus

d) Hyper or hyporeactivity to sensory input

3) Symptoms must be present in the early developmental period

4) Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning

5) These disturbances are not better explained by intellectual disability or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur.

#### **Q6. How does one diagnose ASD?**

Every child should receive well-child check-ups with a pediatrician. The American Academy of Pediatrics recommends that all children be screened for developmental delays at their 9-, 18-, and 24- or 30 month well child visits and specifically for autism at their 18 and 24 month well child visits. Additional screening must be needed if a child is at high risk for ASD.

Easy screening tool for ASD is the M-Chat test which can be done by a general pediatrician and is available online.

The specific test for ASD is CARS-2 and ADOS which are conducted by a developmental pediatrician, or pediatric psychiatrist or pediatric psychologist.

#### **Q7. How do we treat Autism?**

The type of treatment your child receives for ASD depends on his individual needs. ASD is a spectrum

disorder, and each child who has it is unique and there are a variety of symptoms.

Various behavior and communication treatments are the mainstays of treatment in ASD. These include:

1. Applied Behaviour Analysis...this is used to help your child learn positive behaviors and reduce negative ones. This has several components like discrete trial training, pivotal response training, early intensive behavioral intervention, and verbal behavior intervention.

2. Developmental, individual differences, relationship-based approach (DIR). This is also known as floor time. It is meant to support emotional and intellectual growth by helping him learn skills around communication and emotions

3. Treatment and education of autistic and related communication handicapped children (TEACCH)...this uses visual cues such as picture cards to help children learn everyday skills.

#### **OCCUPATIONAL THERAPY:**

Occupational therapy is essential and a very important modality in children with sensory issues either hyper or hyposensitivity. The overload of sensory issues is a major deterrent to the development of a child with autism and occupational therapy has a major role to play in this.

#### **Q8. What is the role of medications in autism?**

Currently, there is no cure for autism and there are no medicines clearly lined up to treat autism.

However, symptoms associated with autism-like seizures, ADHD, insomnia, constipation, and anxiety need to be treated.

Risperidone is the drug used after 5yr in children with aggressiveness, irritability. Methylphenidate and amphetamines are used to treat associated ADHD. Likewise, seizures are treated with appropriated medicines.

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# USEFUL MOBILE APPLICATIONS FOR PRIMARY CARE PEDIATRICIAN



**DR AMIT ARORA, MD**  
MAMC, MD Pediatrics 2002-2005  
Consultant Pediatrician, Delhi  
Email : damitaroramamc@gmail.com

“Maybe if we tell people the brain is also an app they will start using it”

It goes without any saying that clinician’s clinical acumen, knowledge, and personal experience are the best tools when it comes to treating a patient. Nevertheless, with changing time, play store and app store are flooded with clinician-friendly mobile apps, which will help in taking quick actions in busy office practice. In the present article, I have used certain criteria for inclusion of such apps. First, the app must be user-friendly. Second, it should be either free or inexpensive. Third, the app must be of practical value to a pediatrician’s practice.

## (A) **Pedi Quikcalc -**

1. It has one of the best pediatric dose calculator.
2. Estimates weight and length for age using the latest CDC growth data.
3. Provides fast bilirubin calculator for viewing bilirubin risk zone management and threshold.

It

also provides AAP recommendations for evaluation and Treatment of neonatal hyperbilirubinemia.

4. It plots length and weight on WHO/CDC growth charts, calculates mid-parental height.
5. It calculates iv boluses and maintenance rates.
6. The only drawback is its availability on IOS only. It costs 330 INR.

<https://itunes.apple.com/us/app/pedi-quikcalc/id416368344?mt=8>

## (B) **PEDISTAT**

1. Focuses mainly on advanced life support.
2. Informs about normal vital signs, toxicology, and equipment, etc.  
eg.-just enter weight and It will give you sizes of the chest tube, ETT, Foley’s catheter, and laryngoscope blade size.

[https://play.google.com/store/apps/details?id=com.qxmd.pedistat&hl=en\\_IN](https://play.google.com/store/apps/details?id=com.qxmd.pedistat&hl=en_IN)

## © **DoCon**

1. Generates digitized medical prescription.
2. Maintains all medical history.

3. Record and track growth/vaccination.
4. Sends programmed alerts to targeted patients.
5. Sends appointment and vaccination reminder automatically.  
<https://www.docon.co.in/>

#### **(D) MEDTRAIL**

1. Converts handwritten prescriptions and hard copies of lab reports into a digitized one and sends it to the patient via WhatsApp.
2. Simultaneously, it stores all visits in digitized form.
3. The only drawback is its recurring cost and investment in hardware.  
<https://medtrail.in>

#### **(E) HEALTHIFYME**

1. It has been awarded the best health-related app many times.
2. It is useful for evaluating obese patients.
3. The best part is the calorie counter that helps doctor as well as patient to track ingested calories using a database of over 10000 Indian foods.
4. It syncs with Google fit and other wearables to help the patients track calories they burn and plan their diet accordingly.
5. It sets calories goals to monitor one's progress and modify daily food and fitness regimes accordingly.  
<https://www.healthifyme.com/>

#### **F) NIKSHAY**

1. It is an important app of health care providers to manage their TB patients.
2. It has basic support such as entering the patients, adding medical tests details, treatment details and monitoring adherence.  
<https://nikshay.in/>

#### **G) — CHAT**

1. Usually, autism gets missed in busy office practice. In such situations, this is an exceptional screening tool which can be used by parents also while waiting their turn.
2. Just click <https://mchatscreen.com/> and fill the question in yes/no. At the end of it, you will get to know the probability of autism in a particular toddler.

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# Advances in the Diagnosis of Vector-Borne Diseases



**DR. DINESH SINGHAL**

MBBS, M. D ( Paediatrics),

DNB (Paediatrics)

Consultant Paediatrician,

Dwarka , New Delhi

Email: docsinghal2002@yahoo.co.in

Vector-borne diseases (VBD) are of major importance to humans. In the last few years, VBD has been emerging again in many geographical areas, alarming new disease threats and economic losses. The diagnosis of these diseases remains a major challenge because of the lack of comprehensive data available on accurate and reliable diagnostic methods.

The three commonly seen vector-borne diseases in India are Malaria, Dengue, and Chikungunya fever.

**Malaria** is seen throughout the year in all parts of the country, it is spread by female Anopheles mosquito and is caused by Plasmodium Protozoa - Plasmodium vivax and Plasmodium falciparum are the two main species causing malaria.

As far as the diagnosis of malaria is concerned, when the child comes with typical symptoms of high-grade fever with chills, we usually get peripheral smear for malaria parasite done. Both types of thick (to diagnose malaria )and thin ( to confirm the species) smears are made.

The test nowadays that is used is the **Malaria Antigen test**. It is a rapid diagnostic test. It can differentiate between Plasmodium vivax and falciparum. The preferred targeted antigens are those which are abundant in all asexual and sexual stages of the parasite, currently detection of histidine-rich protein 2 ( HRP-2) from Plasmodium falciparum and parasite-specific lactate dehydrogenase (pLDH) from all other species is done. The report of the test is available within 1-2 hours.

Serology detects antibodies against malaria parasites, using either indirect IFA (Immunofluorescence) or ELISA. Serology does not detect current infection but rather measures past exposure.

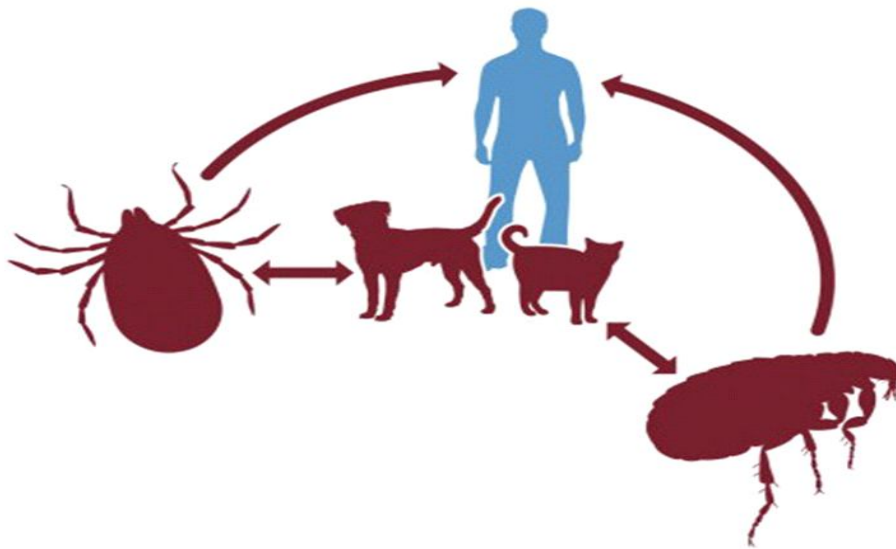
**Molecular Diagnosis of Malaria:** - Parasite nucleic acids are detected using PCR (Polymerase Chain Reaction). PCR results take time and are most useful for confirming the species of the malarial parasite after diagnosis has been made by smear microscopy or rapid diagnostic tests. PCR cannot be considered a rapid technique for the initial diagnosis of malaria. Its value lies in its sensitivity, with the ability to detect 5 parasites or less/ microliter of blood.

**Dengue** is now prevalent throughout the country. Hematological investigations-

Haematocrit ( which can be decreased or increased depending on the condition), leucopenia, thrombocytopenia can be there.

The most promising test in Dengue is Dengue NS1 (non-structural protein). It is positive even on Day 1 of fever. The NS1 Antigen is a glycoprotein that is synthesized by all flaviviruses and is secreted from infected mammalian cells during the acute phase of infection. The NS1 Test has high specificity and moderately high sensitivity to dengue infection. The sensitivity of NS1 antigen detection is higher in a primary infection (>90% ) than in secondary infection( 60%-80%).

From day 5 of illness, serology (antibodies- IgM, IgG) is the method of choice. The positivity is up to 80% for IgM type of antibodies in primary dengue. In secondary dengue, IgG antibodies are the predominant type. The test should be done by ELISA method.



In the later stage of illness, Dengue Serology is more useful as NS1 antigen remains detectable for up to only nine days and the patient may thus test negative for dengue if testing is done after that period.

Detection of dengue virus by culture is the definitive diagnostic test, but practical considerations like cost, limited period of time in which virus can be cultured, limits its use. Therefore, antibody tests and NS1 Antigen test are most commonly used for diagnosis of dengue.

Radiological investigations can be done for dengue- USG Abdomen shows ascites, hepatomegaly, splenomegaly, gall bladder wall thickness (> 3mm ) is significant. These findings are more commonly seen in cases of Dengue Hemorrhagic Fever.

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