



# Medi **VOCAL**

Monthly Newsletter

VOLUME 1 ISSUE 6  
JUNE 2024



## DEMYSTIFYING LIVING WILL & END OF LIFE CARE IN GOA

VENUE-CELEBRATION HALL , PONDA

IMA GOA STATE, PONDA TALUKA LEGAL SERVICES AUTHORITY,  
IMA BICHOLIM & IMA PONDA ORGANIZED STATE LEVEL PROGRAM



**DR. ROOP GURSAHANI -ADVANCED CARE PLANNING**

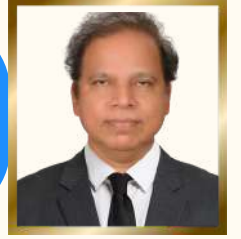
**DR AMOL MAHALDAR-OPERATIONALIZING END OF LIFE CARE IN GOA**

**EXECUTION OF AMD .**





## **Message by IMA President**



**Greetings from IMA Goa State !**

**IMA Goa State committee for the year 2024 is halfway in its glorious journey.**

**I am very happy with the achievements and the accomplishments in the first half . Both our themes have been successfully implemented.**

**Be kind to your mind was our logo with an aim to create mental health awareness among the professionals and the community that we serve.**

**This theme has gone on auto mode now , having trained 150 plus counselors who in turn will take up the training of school teachers across 500 schools in Goa . My sincere gratitude to Mental health specialist from Sangath centre Dr. Abhijeet Nadkarni and Miss Urvita Bhatia, and also to Directorate of Education, DHS and GEDC for collaborating with us in conducting this programmes.**

**Our second theme was End of life care and medical futility with advanced medical directives.**

**By now we all are aware that AMD, also called as the living will has been implemented in Goa ,thus becoming the first state in India to do so.**

**We had an state level awareness program at Ponda , wherein one of our senior IMA member executed his living will in front of 80 doctors. All the protocols and SOP were explained to those who were present. We intend to have similar awareness program for North and South Goa. We want the concept to spread far and wide as the motto behind is genuine and purely in the interest of those patients with progressive terminal illness with no hope for cure. I am sure the theme is here to stay and will continue to exist for years to come.**

**Long held dogma in modern medicine is ' Greater the physicians experience, Better is the patient care and it is true to some extent . But now experience ,needs to be complimented with latest updates in the medical field as the medical information that is pouring in with each passing day is at exponential rate. Concepts are getting outdated in no time with newer treatment protocol and guidelines to which one has to remain ever updated.**

**It is all the more important while dealing with modern well informed patients, specially with Bhartiya Nyay Sanhita act section 106 playing the background alarm, that proven act of medical negligence is punishable with a imprisonment up to two years and also fine.**





However when it comes to alleged Medical negligence, it is high time now that we should go by the age old saying 'Prevention is better than cure.' Let us introspect and see whether we as doctors are playing our role with perfection.

We can't change people but we can definitely change ourself .Let us change for good.Let us play our role with perfectionby maintaining proper record ,informed consent ,by being KIND TO OUR MIND and the patient's mind and most important by constant updating the medical knowledge ,as this will go a long way in preventing majority of cases of Medical negligence, although we know very well that patient community and the society in general fails to understand the fact that there are circumstances which are beyond control of the treating doctor .

National IMA has also declared a campaign on violence on doctors and hospitals and Criminal prosecution of doctors in cases of proved medical negligence . We doctors are practicing today under the ambience of fear and mistrust.

However National President has made the IMA stand very clear . National IMA demands that there should be a stringent central law for violence against the doctors and also stipulates that the medical negligence in the absence of criminal intent(mens rea) ,doctor to be held responsible only in civil law with exemption from criminal prosecution. IMA Goa State extends a strong support for this National IMA campaign under the banner JUSTICE FOR DOCTORS.

As far as Goa is concerned we already have Goa Medicare Service Personnel and Medicare Service Institutions Act 2013 ( Goa Act 24 of 2013 ) in place,wherein any act of violence on doctors or damage to hospital property is a cognizable and non – bailable offence with imprisonment for a term which may extend to three years or with fine which may extend to fifty thousand rupees or both. However it is the need of the hour that we need to create awareness about this act both in police dept as well as community in general.

If this issues are not addressed in time in the best interest of medical fraternity, the day is not far wherein this so called most sought after noble profession will lose its demand and charm which can prove detrimental with anguish ,agonies and distress to the patient fraternity.

**JAI HIND!**

**LONG LIVE IMA!**



***Message by Editor , Newsletter***

**Dr. Sandesh Chodankar  
IMA Goa State President.**

**“Indian Medical Association Goa state has undertaken multiple activities having a positive impact on the medical community as well as general public, we intent to continue the good work with your gracious support !!**

**Dr. Medha Salkar**







## IMA GOA STATE LEVEL EVENT

Goa State IMA in collaboration with NALSA under the guidance of the Hon High court judge Shri. Mahesh Sonak successfully issued the “Operationalization of end of life care “guidelines and Goa has now the honor of being the first state to implement the AMD.

Dr. Pradeep Padwal was privileged to execute his living will at State Level Program organized on 22nd June 2024.

Dr. Shekhar Salkar and Dr. Sandesh Chodankar obliged to be the witness and Dr. Medha Salkar stamped the seal as a gazetted officer in the glittering function .



## YOGA DAY CELEBRATED

As a part of yoga day celebration IMA State President Dr. Sandesh Chodankar was invited as a chief guest by PSSM ,a spiritual organization based at Bangalore, at Miramar Panjim on 21st June 2024.

Dr. Sandesh Chodankar spoke on Science behind Meditation.



It was followed by overnight intense session of meditation for 12 hours





## YOGA DAY CELEBRATED

**IMA GOA STATE** along with Manipal hospital celebrated Yoga day on 21 June, IMA Goa State President Dr. Sandesh Chodankar , IMA Bicholim President Dr. Shekhar Salkar and others were present for the occasion. Dr. Sandesh Chodankar emphasized the importance of Yoga.



## IMPORTANT MEETINGS

**IMA Goa State** president Dr. Sandesh Chodankar, IMA Bicholim president Dr. Shekhar Salkar along with Dr. Amol Mahaldar and Dr. Devdutt Sail had a meeting with Hon'ble Governor of Goa Mr. Pillai on 10 June'24 and handed over the AMD to him. Honorable Governor appreciated IMA's efforts and congratulated for implementing AMD in Goa.





## IMPORTANT MEETINGS



**IMA Goa State President Dr. Sandesh Chodankar, and IMA Bicholim President Dr. Shekhar Salkar handed over the AMD to Chief Secretary Mr Puneet Goel.**

**IMA Goa State President Dr. Sandesh Chodankar, and IMA Bicholim President Dr. Shekhar Salkar handed over the AMD to Health Secretary Mr Arun Mishra and Collector North Dr. Sneha Gite.**

**Deputy Director Dr. Rupa Naik, Chief Medical Officer Non-communicable Disease Dr. Mohanrai Desai, and Dr. Kedar Naik Nodal Officer NCDC were present at the occasion**



## IMPORTANT MEETINGS



**IMA Goa State President Dr. Sandesh Chodankar, and IMA Bicholim President Dr. Shekhar Salkar handed over the AMD to Deputy Director Dr. Rupa Naik**

**IMA Goa State President Dr. Sandesh Chodankar, and IMA Bicholim President Dr. Shekhar Salkar handed over the AMD to Mr Dipak Desai Deputy Collector in the presence of Mrs Vijaya Ambre , Member secretary GSLSA.**



## IMA GOA STATE LEVEL EVENT

**IMA GOA STATE & IMA GOA STATE –DISASTER MANAGEMENT CELL ORGANISED ORIENTATION PROGRAM ON DISASTER MANAGEMENT FOR HEALTH PROFESSIONALS IN GOA  
VENUE: HOTEL DELMON, PANAJI GOA DATE: SUNDAY, 30TH JUNE 2024  
55 delegates attended the program**



# IMA BARDEZ CME ON PRACTICAL APPROACH TO ABDOMINAL PAIN

Venue – Hotel Green Park, Guirim Date 15th June 2024



**CME on “Practical Approach to abdominal pain”**  
**Speakers – Dr Vardhan Bhoje and Dr Sarang Kanekar**  
**1 CME point granted 80 Members attended the CME**

**Monthly CME - 21st June 2024. at**  
**Hotel Regenta Place Vasco'**

**IMA MORMUGAO**

**It was attended by 52 members.**

**Speakers and Topics**

**Dr.Sujit Lugun : Acute Heart failure and Recent Advances**

**Dr Avinash Anand : Recent Advances in oncosurgery ,**





# IMA MARGAO COLS WORKSHOP

Cols workshop was held on 28/6/2024 by Dr. Saharsh Thorawat at ACE HOSPITAL MARGAO for staff members of hospital.

Around 15 staff attended the workshop.

Live demo of COLS was performed and staff individually participated



## IMA MARGAO MIMA CME 2024

Annual MIMA CME for IMA MARGAO was held on 29th June 2024 at metropole hall of Nanutel hotel Margao. CME was accredited for three points by GM council.

It was attended by around 200 doctors from all over goa .

Dr. Ramesh Sanzgiri oration was delivered by Dr Parveen Bhatia from Delhi.

The meeting was followed by fellowship and dinner .

E poster competition was held at MIMA CME and 7 doctors presented the poster .

First three best posters were awarded prizes.

IMA GOA STATE president was present as special invitee for function.



# IMA PONDA

## 09/06/24 HEALTH CAMP AT KERI

A diabetic and hypertensive camp was organized at Keri Ponda Goa by Dr. Suraj Kanekar under the banner of IMA Ponda and Suraiya Nyas Goa from 8-10am. Total 47 villagers participated

Dr Ajit Mhapane ,Dr Gajanan Naik ,Dr Vandana Patankar , Dr Suraj Kanekar



## PONDA BLOOD DONATION CAMP - 14/06/24

IMA Ponda along with the blood bank of Goa Medical College observed World Blood Donors Day by conducting a blood donation camp from 10- 1pm at Dilasa premises.

36 people attended and 25 people donated blood on this day.

The camp was made successful by overwhelming response from the nursing staff of Dilasa.

Special mention to a 22 year old boy from Ponda, Anish Sadhale a 6th time donor himself who came to know about the camp from the social media posts & then managed to get 2 more of his friends as donors.





# IMA PONDA YOGA DAY CELEBRATION BY DR. SURAJ KANEKAR AT SKK SCHOOL - 21/06/24

Yoga day celebration by Dr. Suraj Kanekar at SKK School Keri between 7.45am to 8.30 am .

Total 200 students attended



## YOGA DAY CELEBRATION AT BAIBAL TEMPLE BY DR. SURAJ KANEKAR- 21/06/24



## YOGA DAY CELEBRATION BY DR. SURAJ KANEKAR AT LAXMI TEMPLE - 21/06/24



# IMA PONDA CELEBRATION OF INTERNATIONAL YOG DAY BY DR. SURAJ KANEKAR - 21/06/24

Celebration of International yog day by Dr. Suraj Kanekar at Keri Panchayat Hall between 4.45am to 5.15am.

Total attendance 21.



## IMA PONDAYOGA DAY CELEBRATION BY DR. SURAJ KANEKAR AT PRIOL - 21/06/24

Yog day celebrated at Priol by Dr. Suraj Kanekar at 6.15 AM to 7.00 AM at Keri Total 14 participants.





# IMA PONDA CELEBRATION OF YOGA DAY BY DR. SURAJ KANEKAR AT FARMAGUDI - 21/06/24

**Celebration of yoga day by Dr. Suraj Kanekar at GVM Higher Secondary Farmagudi Ponda NSS Unit at 8.30 AM to 10 AM .  
Total 110 students participated .  
Pledge to plant 100 trees at Bandora & Keri Panchayat & not to use tissue paper.**



## PONDA CELEBRATION OF YOGA DAY AT SOMNATH TEMPLE KODAR BY DR. SURAJ KANEKAR 22/06/24

**Celebration of yoga day at Somnath Temple Kodar at 5.30 AM to 6.30 AM.  
Total 12 villagers attended**



## BOOK RELEASED BY DR. NUTAN DEV NAMED "CHITRAKAVYA" - 08/06/24

**GLIMPSES**



# IMA PONDA

**DR. SURAJ KANEKAR CELEBRATED YOGA DAY AT KHANDEPAR HIGH SCHOOL - 22/06/24**

**Dr. Suraj Kanekar celebrated yoga day at Khandepar High School for Primary students at 8.20 AM to 9.20 AM.**

**Total participants 300 students. Pledge to carry handkerchief at school & not to throw plastic out & have daily bath in the morning & come.**



## IMA PONDA HEALTH CAMP AT MAYURESH HALL 23/06/24

**Shree Nagesh Maharudra Arogya Seva Manch in association with IMA Ponda, IMA Ponda Charitable Trust, Jeshth Nagarik Manch, Swarajya Nyas, NSPCAIM Goa Chapter & Dr. Vallabh Dhaimodker Foundation organized Health Camp at Mayuresh Hall, Shree Nagesh Devasthan Bandora.**

**Sixty senior citizens underwent General Health Check up , Hypertension & Diabetes detection.**

**Glycosulated Hemoglobin, ENT Check up & Audiometry was conducted in indicates cases.**

**This is a monthly camp.**





## REGULAR HEALTH CHECK UP CAMP AT BALKALYAN ASHRAM – 23/06/24

Dr. Ajay Pednekar examined 30 patients during regular health check up camp at Balkalyan Ashram Talauli on Sunday.

RBSL & BP check up was done in needy patients.

Free medicine samples were distributed .



## DR. SURAJ KANEKAR CELEBRATED YOG SESSION AT GOVERNMENT PRIMARY SCHOOL SATODE KERI - 24/06/24



## DR. SURAJ KANEKAR CELEBRATED YOGA DAY AT GOVERNMENT PRIMARY SCHOOL- 24/06/24

Dr. Suraj Kanekar celebrated yoga day at Government Primary School at Amarkhan Keri between 8.30 AM to 9.15 AM .

Total 12 students attended.

Stress on daily morning bath & hygiene.



**DR. SURAJ KANEKAR CELEBRATED YOG DAY IN PRADHANYA SCHOOL KERI- 25/06/2024**



**CELEBRATION OF YOG DAY BY DR. SURAJ KANEKAR IN GOVERNMENT SCHOOL - 25/06/24**



**SCHOLARSHIP FOR GIRLS BY DR. AJAY PEDNEKAR UNDER "BETI BADA0 BETI PACHAO" - 26/06/24**

**Under "Beti Bachao Beti Padhao" initiative of IMA Dr. Ajay Pednekar of IMA Ponda has adopted two needy Girls students of Wagle High School Mangeshi. They will be provided with monthly Scholarship of Rs. 1000/- each, for whole Academic year & free medical treatment.**





**PONDATALK BY DR. SURAJ KANEKAR - 26/06/24**

**Dr. Suraj Kanekar President IMA Ponda gave a talk on Rich Indian Culture & its benefits to the IX<sup>th</sup> Standard students of Wagle High School .  
40 students along with headmistress Mrs. Mitasha Aigal & Dr. Ajay Pednekar attended the talk.**

**IMA PONDA DOCTORS DAY CELEBRATION ON  
30/06/2024**

**IMA Ponda celebrated annual Doctors day Programme on the 30th June Sunday at IMA House Ponda.**

**The chief guest for the function was Dr Chetan Patel, National DMC chairman, while the guest of honour was Dr Sandesh Chodankar, IMA state president.**

**Dr Vinay Kamat, Dr Ashok Amshekar and Dr Pradeep Shinkre were felicitated for their service to medicine and the society. Rtn Santosh Shetye was also felicitated for his selfless social service, which has helped Dilasa in many ways.**

**Ms Diya Pradeepkumar Pandey, Ms Netra Prahlad Savaikar, Ms Yukta Shirish Mandurkar, Mast Gaurav Sandesh Madkaiker and Dr Raj Borkar were also felicitated for their academic achievements.**

**The programme was then followed by an entertainment programme organized by Dr Ajay Pednekar which was enjoyed by all the doctors present**



# IMA TISWADI

## IMA TISWADI CME, SATURDAY 8TH JUNE 2024

IMA Tiswadi successfully arranged Physical CME on Saturday 8th June 2024 at 7.30 PM at Hotel Delmon, Panaji Goa.

**Speakers-Dr Gaurav Chaubal- Director Liver, Pancreas and Intestine Transplant & HPB Surgery at Global Hospital Mumbai Topic-Approach to Liver lesions.**

**Dr Alisha Chaubal- Senior Consultant, Hepatology and Liver Transplant Topic-Drug Induced Liver Injury**

**Dr Jose Alvares, Consultant Gastroenterologist Topic- Management of Alcoholic Liver Disease.**



**50 delegates attended the CME 1 credit point by Goa Medical Council.**

## IMA TISWADI CME, SATURDAY 8TH JUNE 2024



**Date- 28th June 2024 at Hotel Delmon, Panaji, Goa.**

**Dr Amol Mahaldar, Consultant Nephrologist and Transplant Physician Discussed Management of Diabetic Kidney Disease and**

**Dr Pankaj Mhatre, Consultant and In Charge Department of Nuclear Medicine, Manipal Hospital Goa educated the delegates about Role of PET CT in Oncology and Beyond.**

**Nearly 60 delegates attended CME which was accredited with 1 credit point by Goa Medical Council.**







# MSN MARATHON

## MSN SYMPOSIUM -AWARENESS ON TOPICS IN HEMATOLOGY

Goa Medical College & Hospital in collaboration with the Indian Society of Hematology & Blood transfusion, Goa Association of Resident Doctors (GARD), Goa Medical College Students' Association(GMCSA), IMA-MSN organized it's first joint medical symposium at new auditorium of GMC on 7th June 2024. 270 doctors attended.



The Expert Alumni guest faculty who conducted the symposium were Dr. Reena Nair, Clinical Hematology, Tata Medical Centre, Dr.Riya Ballikar, Head,Clinical Hematology, KIMS Kingsway hospital,Nagpur and Dr. Yamuna Naik, Assistant Professor, Clinical Hematology.

The topics covered by them were Research Ideas in Hematology, Challenges in management of Thrombocytopenia and Approach to Anemia.

Along with this, the symposium was preceded by a National level Quiz round for Post graduates from Medicine, Pathology & Blood transfusion Medicine. IMA-MSN & GMCSA Advisor Dr.Jagadish A. Cacodcar, GARD President Dr. Frazer Rodrigues, IMA-MSN President Arijit Kakodkar & MSN team & General Secretary GMSCA Vedant Pawar & team were part of it.



Winners of the National Level Quiz



Felicitation of guest faculty



# MSN THALASSEMIA AWARENESS

IMA -MSN Along with Department of Paediatrics organised an event which focused on raising awareness about blood disorders Thalassemia on 21st June' 24

The volunteers for the event first conducted a drawing competition for the children followed by dance round, games like musical chair, & wonderful role play by MSN members.

The Head of Department, Dr. Vaishali Joshi emphasised the critical importance of understanding Thalassemia, its types to the children's parents and how it can impact on their health. The Aim of the event was to highlight the importance of improving the children's compliance to Iron Chelation therapy & improve the knowledge of the parents about how they overcome the complications of Thalassemia major. The success of the event was largely due to efforts of Dr. Vaishali Joshi, Dr. Lorraine, MSN team led by Arijit Kakodkar, Yashaswi Tulaskar, S oha Gadekar, Naman Bindal, Khushi Bandodkar, Harshavi Govekar, Gauri Kamat & MSN volunteers.





# MSN NATIONAL YOUTH LEADERSHIP SUMMIT 2024

IMA-MSN Council lead by IMA-MSN President Arijit Kakodkar & Secretary Yashaswi Tulaskar and MSN members attended the National Youth Leadership Summit 2024 at IMA Headquarters ,New Delhi on the 8th & 9th June 2024 showcasing their active participation in the broader academic and professional community.

The conference conducted a BLS and suturing workshop.

Also there were Keynote sessions,expert panel that included the discussion on NEXT exam.



The summit was also attended by Suryam Singh( Past IMA-MSN President and current Joint Secretary of National IMA-MSN who headed the Debate, paper presentation & cultural events for the delegates.





## ZIKA VIRUS: HISTORY, RESEARCH AND NOW

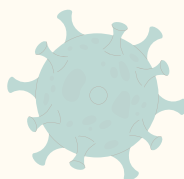
*By Dr Chitralkha Nayak  
MD Medicine*

After the first isolation of Zika virus in 1947 from a rhesus monkey, Zika Virus infection in humans was first described in Nigeria in 1954. For half a century, fewer than 20 human infections were documented and most of the data came from yellow fever virus serosurveys. Zika Virus was isolated from several mosquito species collected during arbovirus studies in Africa and during fever studies in Asia. The first Zika outbreak was reported in 2007 on the Western Pacific island of Yap in the Federated States of Micronesia. This was followed by a larger epidemic in French Polynesia in the South Pacific in 2013 and 2014, with an estimated 30,000 symptomatic infections.

On May 15, 2017, three cases of Zika virus infection in India were reported in the state of Gujarat. By late 2018, there had been at least 159 cases in Rajasthan and 127 in Pradesh. In July 2021, the first case of Zika virus infection in the Indian state of Kerala was reported. After the first confirmed case, 19 other people who had previously presented symptoms were tested, and 13 of those had positive results, showing that Zika had been circulating in Kerala since at least May 2021. By August 6th 2021, there had been 65 reported cases in Kerala. On October 22, 2021, first reported case in Uttar Pradesh was reported in Kanpur. In July 2024, Zika cases detected in Maharashtra especially Pune have raised concern among Dengue predominant states with extra vigilance and screening for pregnant women.

Cocirculation of Zika virus with dengue virus and chikungunya virus has been documented throughout the Americas, Asia, several Pacific islands, and Africa, where Dengue Virus and Chikungunya Virus are endemic. It is now clear that Zika Virus is following the path of Dengue Virus and Chikungunya Virus, spreading to all countries infested with *Aedes aegypti* and *Aedes albopictus* mosquitoes.

The discovery of Zika virus and many other arboviruses was the result of research programs on yellow fever sponsored by the Rockefeller Foundation from 1914 to 1970. Zika virus was discovered in the course of a study of the vector responsible for the cycle of sylvan Yellow fever virus in Uganda. The fact that these viruses were discovered in Uganda does not necessarily reflect the origin of the viruses but rather indicates areas in Uganda where yellow fever studies were conducted.





## Host/Reservoir

### 1. Nonhuman primates

Zika virus antibodies have been detected in different monkey species in Africa and Asia. Studies tested human and monkey serum samples; as Zika virus seroprevalence was higher in humans (44.1%) than in orangutans (8.5%), they concluded that orangutans may have been infected with Zika virus from a human reservoir or from recently established sylvatic cycles and that nonhuman primates may be reservoir hosts of Zika virus in Asia.

### 2. Other species

Serosurvey studies detected antibodies to Zika virus in bats, goats, rodents (*Tatera indica*, *Meriones hurrianae*, and *Bandicota bengalensis*), and sheep. These data may indicate cross-reactivity with other flaviviruses but suggest that there is no clear association between Zika virus and a particular animal species. However, Zika has never been isolated from nonprimates, so it is not clear whether other species can act as reservoir hosts

## Mode of Transmission

### • Vector Borne Transmission

Zika was first isolated from *Aedes africanus* in 1948. Subsequent isolates of Zika from this species included 2 strains from the Lunyo Forest and 12 strains from the Zika Forest of Uganda. Other arboviruses (*Ntaya virus*, Yellow Fever Virus, Rift Valley fever virus, and Chikungunya virus) have also been isolated from *Aedes Africanus*. This mosquito prefers monkeys to humans but also feeds on rodent, avian, and reptilian species.

The first isolate of Zika virus in Asia was obtained from *Aedes aegypti* in Malaysia in 1966; it was the first isolate of Zika virus from a mosquito other than *Aedes africanus*. Zika virus was isolated from a male *Aedes furcifer* mosquito, suggesting possible vertical transmission, which could be an important mechanism of Zika virus maintenance in nature. The seasonal distribution of the Zika infection rate in mosquitoes in Senegal showed two peaks of amplification, in June and between September and December; 31 strains of Zika virus were isolated from mosquitoes.



## •Non-Vector-Borne Transmission

### 1.Laboratory contamination:

A laboratory staff member developed a febrile illness after yellow fever vaccination (17D vaccine), but Zika virus was isolated from blood taken the first day of illness. The infection was believed to be laboratory acquired.

2.Sexual transmission: Four reports suggest the possible sexual transmission of Zika virus. In 2008, an American scientist conducting mosquito field work in Senegal became ill with common symptoms of Zika infection after returning to the United States. He also had prostatitis and hematospermia. His wife, who had no history of travel outside the United States since 2007, had sexual intercourse with her husband the day after he returned home. She subsequently developed a Zika fever-like illness, suggesting transmission by sexual intercourse. Both patients were confirmed as Zika infection by serological testing. Also, in December 2013, during the French Polynesian outbreak, a 44-year-old man sought medical care for hematospermia. The patient presented no signs of urinary tract infection, prostatitis, urethritis, or cystitis, and he reported no recent close contact with persons with acute Zika infections. Blood and semen samples were collected; Zika Virus RNA was detected by RT-PCR, and virus was isolated by inoculation of semen samples onto Vero cells. A second set of samples was collected; Zika virus was detected in semen and urine but not in blood. The detection of Zika virus in semen while it was not detected in blood collected at the same time suggested viral replication in the genital tract. Also, virus was isolated from the convalescent phase semen of a patient, but his serum and urine were negative and cases of Zika fever transmitted by sexual contact were reported in Texas. These results confirmed that Zika can be transmitted by sexual intercourse and is a potentially sexually transmitted virus. The CDC recommends deferral of semen donation for 28 days after returning from areas where Zika is endemic.

Although the main mode of transmission of Zika fever is thought to be via mosquito bite, the low viremia observed in patients and the rapid spread within countries suggests other modes of transmission. The evidence of sexual transmission suggests a mode of interhuman transmission that could contribute to its rapid spread.

### 3.Maternofetal transmission:

Perinatal transmission has already been reported for other flaviviruses such as Dengue and West Nile virus, as well as alphaviruses such as Chikungunya virus, so it should not be surprising if it occurs with Zika virus.

Two cases of perinatal transmission of Zika virus were reported during the French Polynesian outbreak. Zika virus RNA was detected in serum samples from both mothers and infants and in both mothers' milk. One of the infants remained asymptomatic, while the other had a maculopapular rash with thrombocytopenia. Both the mothers and the infants recovered uneventfully.





Even though no infective Zika virus particles were detected in breast milk, the possibility of Zika transmission by breastfeeding must be considered. Given the severe neonatal complications reported after chikungunya and dengue infections, authors recommended close monitoring of perinatal Zika infections even before the description of severe complications in Brazil.

Maternofetal transmission was confirmed in Brazil in pregnant women who gave birth to neonates with severe malformations; Zika virus RNA was detected in amniotic fluid and blood and tissue samples from microcephalic newborns. The French Polynesian data suggested perinatal transmission; the Brazilian cases suggest that it can also occur transplacentally during pregnancy, causing severe malformations.

#### 4. Transfusion-transmitted infections:

Arbovirus transmission by transfusion of blood products has been documented for dengue, West Nile virus. Given its epidemiology, the possibility of Zika transmission via transfusion should be considered as well. To prevent potential Zika transmission by transfusion, a specific nucleic acid testing protocol was implemented during the French Polynesian Zika outbreak. From November 2013 to February 2014, 42 (2.8%) of 1,505 blood donors tested were confirmed positive for Zika RNA; all of them were asymptomatic at the time of blood donation. Eleven of the 42 blood donors developed a “Zika fever-like syndrome” within 3 to 10 days after blood donation. No transfusion-transmitted Zika fevers were documented during this outbreak, but the possibility that asymptomatic post transfusion infection occurred cannot be ruled out. Unfortunately, blood samples collected within the first week after transfusion were not available. These results suggested that Zika can be transmitted by blood transfusion and that Zika nucleic acid testing can prevent the transmission of Zika by blood transfusion. In areas with vectors competent for Zika transmission, epidemic preparedness plans should include sustainability of the blood supply.

In addition to nucleic acid testing of blood donors, prevention of post transfusion Zika fever can be performed by pathogen inactivation in blood products. The CDC recommends deferral of blood donation by people returning from areas with active Zika virus circulation (for 14 days, the same as for dengue), deferral for 28 days after cessation of symptoms for blood donors with confirmed Zika infection, and implementation of pathogen inactivation in platelets and fresh frozen plasma in infected areas. They also recommend transfusion of blood products to pregnant women only after the products test negative for Zika virus. However, this requires a laboratory with the capacity to perform molecular screening of blood donors. The first case of Zika transmission by blood transfusion was reported in Brazil in December 2015.



## Pathogenesis

Zika virus replicates in the mosquito's midgut epithelial cells and then its salivary gland cells. After 5–10 days, the virus can be found in the mosquito's saliva. If the mosquito's saliva is inoculated into human skin, the virus can infect epidermal keratinocytes, skin fibroblasts in the skin and the Langerhans cells. The pathogenesis of the virus is hypothesized to continue with a spread to lymph nodes and the bloodstream. Flaviviruses replicate in the cytoplasm, but Zika antigens have been found in infected cell nuclei.

The viral protein NS4A can lead to small head size (microcephaly) as it disrupts brain growth by hijacking a pathway which regulates growth of new neurons.

## Clinical Features

Around 80% of cases are estimated to be asymptomatic. Symptomatic cases are usually mild and can resemble dengue fever. Symptoms may include fever, red eyes, joint pain, headache, and maculopapular rash. Symptoms generally last less than seven days. It has not caused any reported deaths during the initial infection. Infection during pregnancy causes microcephaly and other brain malformations in some babies. Infection in adults has been linked to Guillain-Barré syndrome (GBS) and transverse myelitis. Zika virus has been shown to infect human cells. Zika infection closely mimics dengue, chikungunya and influenza and can be easily missed.

## Diagnosis

Diagnosis is by testing the blood, urine, or saliva for the presence of Zika virus RNA. In 2019, FDA granted approval of an improved diagnostic test, based on research from Washington University in St. Louis that detects Zika infection in serum.

## Treatment

There is no specific treatment available for Zika virus infection or disease.

People with symptoms such as rash, fever or joint pain should get plenty of rest, drink fluids, and treat symptoms with antipyretics and/or analgesics. NSAIDs should be avoided until dengue virus infections are ruled out because of bleeding risk. If symptoms worsen, patients should seek medical care and advice.

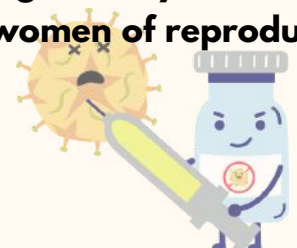
Pregnant women living in areas with Zika transmission or who develop symptoms of Zika virus infection should seek medical attention for laboratory testing, information, counselling and other clinical care.

## Prevention

No vaccine is yet available for the prevention or treatment of Zika virus infection. Development of a Zika vaccine remains an active area of research.

### •Mosquito bites

Protection against mosquito bites during the day and early evening is a key measure to prevent Zika virus infection, especially among pregnant women, women of reproductive age and young children.





Personal protection measures include wearing clothing (preferably light-coloured) that covers as much of the body as possible; using physical barriers such as window screens and closed doors and windows. Young children and pregnant women should sleep under mosquito nets if sleeping during the day or early evening. Travellers and those living in affected areas should take the same basic precautions described above to protect themselves from mosquito bites.

*Aedes* mosquitoes breed in small collections of water around homes, schools and work sites. It is important to eliminate these mosquito breeding sites, including covering water storage containers, removing standing water in flowerpots, and cleaning up trash and used tires.

#### •Prevention of sexual transmission

WHO recommends that sexually active men and women be counselled and offered a full range of contraceptive methods to be able to make an informed choice about whether and when to become pregnant in order to prevent possible adverse pregnancy and foetal outcomes.

Women who have had unprotected sex and do not wish to become pregnant due to concerns about Zika virus infection should have ready access to emergency contraceptive services and counselling. Pregnant women should practice safer sex (including correct and consistent use of condoms) or abstain from sexual activity for at least the entire duration of pregnancy.

For regions with no active transmission of Zika virus, WHO recommends practicing safer sex or abstinence for a period of three months for men and two months for women who are returning from areas of active Zika virus transmission to prevent infection of their sex partners. Sexual partners of pregnant women living in or returning from areas where local transmission of Zika virus occurs should practice safer sex or abstain from sexual activity throughout pregnancy.

