



# ZIKA VIRUS

## STAYING SAFE

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# **ZIKA VIRUS – STAYING SAFE**

A VIDEOTEL PRODUCTION

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International Maritime Health Association (IMHA)

**CONSULTANTS:**

DR MED. CLARA SCHLAICH

MPH (Johns Hopkins University)  
Specialist in Infectious Diseases/  
Occupational/Maritime Medicine

DR MED. KARL-PETER FAESECKE

DR TIM CARTER

**WORKBOOK AUTHOR:**

STEVEN JONES

**PRODUCER:**

KASIA WÓJCICKA

**EXECUTIVE PRODUCER:**

RON BRANSCOMBE

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# 1. INTRODUCTION

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## The Zika virus - a serious global health issue

Zika is a virus which is spread by several species of the *Aedes* group of mosquitoes that also transmit diseases such as dengue, chikungunya and yellow fever.

In May 2015, the Pan American Health Organization (PAHO) issued an alert regarding the first confirmed Zika virus infection in Brazil. On February 1, 2016, the World Health Organization (WHO) declared Zika virus a Public Health Emergency of International Concern (PHEIC). Local transmission has been reported from Africa, the Americas and the Pacific. It is considered that Zika virus will likely continue to spread to new areas.

Unlike other serious diseases, people infected with Zika usually don't get sick enough to go to hospital. For this reason, many people might not realise they have been infected. It is very rare to die of the Zika virus. However, recent reports have suggested a possible association of Zika infection with more serious illnesses such as neurological diseases, or birth defects such as microcephaly.

The risk of ships' crews or passengers spreading the disease to their home country following a voyage is low due to the short incubation period and a lack of *Aedes* mosquitoes in more temperate countries. The main concern is a possible sexual transmission of the virus following air travel, since live Zika virus has been reported in semen up to 62 days after all clinical symptoms of the disease have disappeared.

There is a theoretical possibility that ships may carry virus-infected mosquitoes or their eggs to new areas. This is considered very unlikely, however, it is known that some cargoes, including used tyres and ornamental plants (lucky bamboo) can carry invasive mosquito species. Female mosquitoes can live for several weeks and their eggs can hibernate for months at low temperatures as long as they don't dry out.

Regardless of the level of risk, ship owners, managers and Masters have a responsibility for taking measures to prevent the illness from being passed on, as well as a duty of care for protecting everyone on board.

### **About this programme**

*Zika Virus – Staying Safe* is intended as a timely introduction to the dangers of Zika and how it could affect seafarers visiting ports where the disease has been reported.

The programme is aimed at crew, ship owners and managers. By doing this training, they will understand:

- the nature of the disease: its symptoms, how it is treated and how it spreads
- the steps they can take to avoid becoming infected with the Zika virus
- what to do if someone on board develops symptoms
- the importance of everyone playing their part in helping to keep themselves and others safe from infection
- understand the role of a pest management plan to avoid passive transportation of virus infected mosquitoes on ships

This workbook summarises the key points made in the video and includes assessment questions that can be used to reinforce the learning. There are also recommendations for further reading and websites of organisations that have issued guidance on the Zika virus or may be of assistance.

## **RECOMMENDATIONS TO TRAINERS**

### **Preparation for group sessions**

#### ***Think about the group***

How familiar is everyone with the topic of the Zika virus? What questions might they ask you? What do you want this session to achieve?

### ***Watch the video***

It is important to familiarise yourself with the video in advance, so that you can anticipate possible questions from the group and research your answers.

### ***Read the workbook***

This short workbook reinforces the key points from the video and contains further resources and assessment questions.

## **Tips for running an effective training session**

### ***Begin with an overview***

Tell the group what the objectives of the session are, what you are going to cover, what they will know by the end of the session and how long it will take.

Make the best use of the video and workbook.

Show the video and open up the session to general questions and discussion. If anyone was unclear about a particular point, or you would like to reinforce a message, you can re-play the relevant section(s) of the video.

### ***Ask questions throughout***

Ask your trainees questions from the start and encourage them to take an active part in the session. You can use the questions in this workbook to test understanding and raise awareness of the issues in trainees' minds.

### ***Start discussions***

Encouraging discussions in a small group will help each individual to make a contribution to the session. But remember that some people are reluctant to speak up, so try and bring them in.

### ***Sum up what the session has achieved***

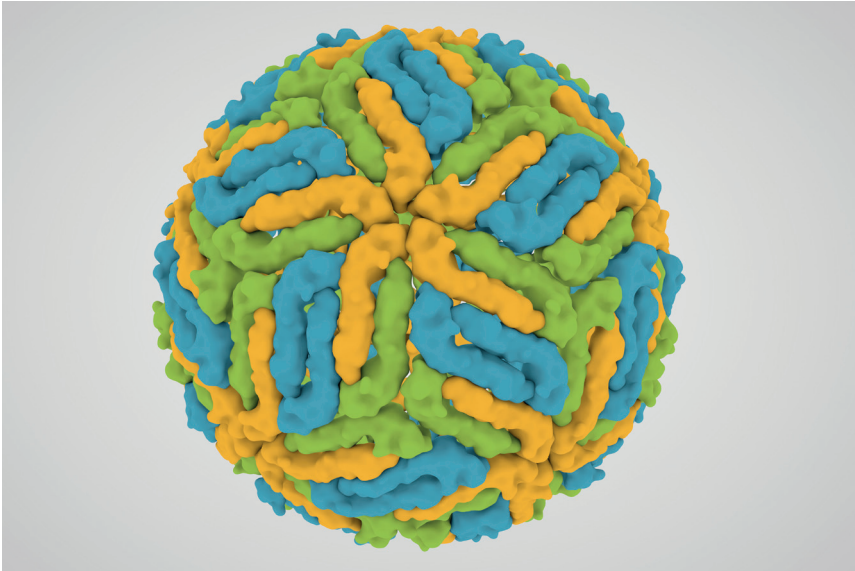
At the end, briefly bring together everything you have covered. Make sure that you have asked for any other questions and answered them. Ask the group what they found most useful about the session. Summarise and highlight the key learning points and draw conclusions.

### ***Afterwards***

When the session is over, spend a few minutes thinking about how it went and how you might want to change it next time. Write down lessons learned.

## 2. LOCATING THE DANGER

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### What is the Zika virus?

Zika is from the *Flaviviridae* family of viruses which use humans and other mammals as natural hosts.

The virus takes its name from the tropical Zika Forest in Uganda where it was first discovered in the 1940s.

The first documented human infections occurred in 2007 in the Federated States of Micronesia. By January 2016, the disease was occurring in twenty regions of the Americas as well as in Africa, Asia and the Pacific. In February 2016 the WHO declared it a Public Health Emergency of International Concern.

Scientists tracking its progress believe it will eventually extend its range to Europe and other continents through transmission by infected travellers.



### 3. TRANSMISSION

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The virus is first transmitted to people through the bite of an infected mosquito of the *Aedes* group, most importantly *Aedes aegypti* – known as the yellow fever mosquito, and the *Aedes albopictus* - known as the Asian tiger mosquito.

Both are found in tropical and subtropical regions, but the Asian tiger mosquito can hibernate to survive cooler temperatures beyond its tropical origins.

Unlike malaria-carrying mosquitoes, the *Aedes* most commonly feed at dusk and dawn, both indoors and outdoors in shady areas, or when the weather is cloudy. They can bite and spread infection at any time of the year and at any time of day. This means that physical barrier methods against being bitten must include protective clothing, window screens, closed doors and windows and sleeping under mosquito nets, around the clock.

*Aedes* is a weak flyer and usually travels no more than 400 metres in its lifetime. This means that people, rather than the mosquitoes, are rapidly moving the virus within and between communities and places, for instance, on board ship. The *Interim Guidance on Maritime Transport and Zika Virus Disease* (available from [www.shipsan.eu](http://www.shipsan.eu)) is a valuable source of information.

The WHO has flagged the international trade in used tyres as major facilitator of mosquito egg movement, as they often contain stagnant water. Also the carriage of some ornamental plants has been identified as a risk.

The Zika virus can also be transmitted through sexual activity with an infected person and has now been detected in various human fluids, including blood, urine, amniotic fluids, semen and saliva. Transmission of Zika virus from pregnant women to their foetuses has been documented and this is a major area of concern. There is also a potential threat from blood transfusions.

## 4. THE SYMPTOMS AND RISKS

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Zika has only recently been thought of as a severe infectious disease and there are new discoveries being made about the virus as research continues, however, what is known is that Zika infection mostly results in flu-like symptoms that range in severity and can last from a few days to more than a week.

People usually don't get sick enough to go to hospital and they very rarely die of Zika. For this reason, many people might not realise they have been infected.

It has been estimated that only 1 in 5 people who catch the virus develop any symptoms at all. This is, in many ways, the most dangerous aspect of Zika – the fact that those who are infected may be unaware and can carry the virus home with them, unknowingly.

In the cases in which symptoms are experienced, the most common symptoms of Zika are:

- fever
- rash
- muscle and joint pain
- red eyes
- headaches

Zika virus usually remains live in the blood of an infected person for about a week but it can be found longer in some people and the symptoms will usually last for 2-7 days. Currently the incubation period (the time from exposure to symptoms) for Zika is not fully known, but is likely to be a few days to a week.

During the first period of infection, Zika virus can be found in the blood and passed from an infected person to a mosquito through mosquito bites. An infected mosquito can then spread the virus to other people.

Although the Zika virus does not kill, its effects cannot be underestimated. Seafarers who work in infected areas are at real risk of picking up the virus, which can have long-term effects on families back home.

This is why it is so important for seafarers to be aware of the problems and to ensure that they protect themselves. Protection can reduce the risks posed and it is vital not only for seafarers themselves, but most of all for their families, or unborn children.

Current research has strengthened the association between Zika infection and the occurrence of foetal malformations and neurological disorders, particularly microcephaly. This is a condition where a baby's head is smaller than normal. Babies with microcephaly have smaller brains too, that might not develop properly. This serious disorder can often pose developmental challenges as they grow older.

Even seemingly healthy children born to mothers infected by Zika could potentially acquire less obvious brain damage and develop mental disorders, such as schizophrenia, as they get older.

The Zika virus has also been linked to Guillain-Barré syndrome, in which a person's immune system attacks the nerves. It is most common among adult men. Severe cases of this condition, although rare, can even result in paralysis. Most patients do recover from Guillain-Barré syndrome, but some may require lengthy hospitalisation.

As research gathers pace, it is likely that other possible problems posed by the Zika virus will be found. There is still much being learned about Zika, but the risk it poses is clear and so action to prevent infection is vital.

## 5. PREVENTION

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Prevention is key and the best way of dealing with the Zika virus is to avoid contracting it in the first place. So avoiding being bitten by mosquitoes is vital.

Some people are more susceptible to bites than others – and this can be affected by a range of issues, from blood type to weight and how much you sweat. Understanding what makes a person attractive to mosquitoes is important.

**Carbon Dioxide:** Mosquitoes are attracted to exhaled carbon dioxide and can detect their prey from up to 50 metres away. Consequently, those that exhale more gas, i.e. often larger people with increased body size, are more likely to get bitten.

**Hygiene:** Aside from carbon dioxide, mosquitoes also rely on other substances, often at close range, to home in on their targets. These include chemicals and compounds produced in skin and sweat, such as lactic acid, uric acid, ammonia, steroids and cholesterol.

Strenuous exercise or physical exertion can result in a build-up of lactic acid which may make some individuals more susceptible. Seafarers who have perhaps been working in a very hot environment such as the engine room, can be at risk of bites if they move outside of the accommodation when perspiring.

Also, seafarers who have been working out in the gym, or running – are a more attractive target for mosquito bites. It is important to stay indoors and to shower promptly after exercise.

It has also been proven that mosquitoes are attracted to foot odour. So it is vital that socks are clean and footwear deodorised.

Pregnant women should avoid travelling to Zika-affected regions altogether, as they are more susceptible to bites. They exhale relatively more carbon dioxide than non-pregnant women and have a higher resting body temperature, both of which attract mosquitoes.

### What can you do?

**Insect Repellent:** Insect repellent is probably the most effective way of reducing the risk of mosquito bites or insect bites in general. The World Health Organization specifically recommends using insect repellent containing DEET, IR3535 or icaridin.

Apply insect repellent to all uncovered skin surfaces when outdoors, especially during the day. Where seafarers also wish to apply sunscreen, this should be applied before the repellent – which will be rubbed or sprayed over the top.

Do not forget extremities – the hands, ears and face are popular targets for mosquitoes. So these need to be protected too.

Vessels should be provided with supplies of insect repellent and seafarers should be encouraged to use it. On vessels with open bridge wings, crew should be reminded of the importance of applying insect repellent as they may be outside during their watchkeeping duties.

**Clothing:** One of the best ways to keep mosquitoes from biting is to simply cover the skin. Wear long sleeves and pants or overalls to cover the skin. Also keep your clothing loose and light in colour.

Loose clothing is important, as mosquitoes can sometimes bite through clothing that's held tight against the skin, especially if the fabric is thin. Clothing may also be sprayed with repellent for greater protection.

The colour of clothing is also important. Mosquitoes are attracted to dark colours such as black and navy blue, as they use vision along with scent to locate their targets. It is best to dress in light colours to reduce the risk of this.

Having as much cover as possible is vital, but it is important to ensure safety too – so do not wear clothes which will pose a trip hazard, or which can be trapped in machinery. There needs to be a balance struck.

**Keep Mosquitoes Out:** Once mosquitoes are inside the accommodation, they will be far more likely to be able to bite. It is important to keep all doors, portholes and windows closed, as well as using physical barriers, such as mesh screens, self-closing doors and air curtains. Check all incoming supplies and spray with insecticide if appropriate.

Seafarers should sleep with a mosquito net over the bed, both at night and during rest periods in the day. Mosquito netting has fine holes big enough to allow breezes to easily pass through but small enough to keep mosquitoes and other biting insects out.

Hang the netting over the bed, securing the top of the net to one or more surfaces. Support the net so that it's tented without hanging down onto you. It is important to sleep without touching the sides - mosquitoes can bite you through the netting

if it's tight against your skin. Check for holes regularly - patch them with duct tape for a quick fix, if necessary.

It is also important to keep air conditioning running on board the vessel – as a low temperature can assist in slowing the development of mosquito larvae.

**Avoiding Mosquitoes:** While vessels will not be able to avoid trading into potential mosquito zones, there are still steps that seafarers can take to try and minimise exposure to bites.

When going ashore, it is important to be aware of the kinds of places where mosquitoes will most likely be located. Try to avoid standing water. Mosquitoes lay their eggs in stagnant water, so lakes, bogs, marshes and swamps are perfect mosquito breeding grounds, but they can also be found in urban or industrial areas.

Open-air garbage dumps, piles of tyres, pools of waste water, all provide attractive places for mosquitoes to lay their eggs.

On board, it's important that vessels do not create their own mosquito breeding grounds. Puddles on deck should be cleaned up as quickly as possible and no containers should be allowed to fill with water and be left standing.

Potential areas on board ships for standing water are: lifeboats, coiled mooring ropes, bilges, scuppers, awnings and gutters, fan rooms, any plastic sheets or open drums, manifolds (tankers), any free space between deck and containers, laundry areas, toilets, showers and galleys.

**Information and Awareness:** It is important that seafarers are aware of the threats posed by mosquitoes and the Zika virus too. Ship owners and managers should provide their vessels with up to date information from key organisations such as the WHO, U.S. Centers for Disease Control and Prevention (CDC) or the International Chamber of Shipping (ICS). P&I Clubs are also valuable sources of information.

**Vessel Preparation:** Owners, managers and Masters will need to ensure that their vessels are able to deal with the various challenges that such a serious health issue can bring.

Vessels that will be trading within mosquito zones, particularly ones with known Zika virus cases, are advised to take precautions to protect crews, but also to try and anticipate problems if a vessel may reasonably be expected to suffer delay, detention or diversion.

These should include sufficient supplies of insect repellent, light coloured boiler suits and mesh port or door coverings. It may also be beneficial to ensure sufficient supplies of additional fuel, water and food, in order to cope with delays and diversions, to reduce the need for crew members to leave the vessel for supplies or to take stores on board.

It may be advisable for vessels which have visited affected areas to be inspected for signs of insect infestation, before arriving at the next port.

**Record Keeping:** It is also advisable to develop an Integrated Pest Management Plan (IPMP) - a programme based on prevention, monitoring, record keeping and control to eliminate or drastically reduce the incidents of insects and pests on board, in this specific case, mosquitoes.

All reports of crew being bitten must be recorded.

**Transmitting Zika Virus:** Sexual transmission of Zika virus is possible. The virus can be passed before symptoms start, while symptoms are evident and after symptoms end.

According to the World Health Organization, in order to prevent transmission, all people who have been infected with Zika virus should practise safe sex, using condoms.

**Male Seafarers:** Men who have travelled to an area with Zika but did not develop symptoms should consider using condoms or not having sex for at least 4 weeks after their return in order to minimise risk, while men who have been diagnosed with Zika virus should wait at least 6 months after their symptoms first appeared to have unprotected sex.

Pregnant couples with male partners who live in, or travel to, areas with Zika should use a condom throughout the whole pregnancy.

**Female Seafarers:** If returning from Zika affected areas, female seafarers should avoid pregnancy for 2 months even if they have not experienced any symptoms.

## 6. TREATMENT

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While many people infected with Zika will not show symptoms, it is important to treat those who do. Unfortunately, a vaccine has not yet been developed.

Aside from trying to ease any pain, treatment of the symptoms aims to help the body naturally combat the infection. However, there are steps that can be taken. People sick with Zika virus should:

- get plenty of rest
- drink plenty of fluids
- treat any pain and/or fever

Seafarers are advised to take acetaminophen or paracetamol to relieve any pain and fever. Note, however, it is extremely important that medicines containing aspirin or other nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, are avoided.

Bear in mind that if you have developed symptoms, you should still act to prevent further mosquito bites, as the insects can carry the virus to someone else.

If you think you may have been infected you should report this to a senior officer or whoever on board is responsible for dealing with medical emergencies.



## 7. SUMMARY

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Unlike many other tropical viruses, Zika is a mild disease and its symptoms may not be obvious, even to those infected. But its transmission can have serious consequences for seafarers and their families back home.

People usually don't get sick enough to go to hospital and they very rarely die of Zika; many people might not realise they have been infected.

The risk of seafarers contracting the Zika virus and taking it back to their home countries is a serious global health issue. Measures to prevent infection and spread of the virus should therefore be a priority.

Remember, prevention is the best way of dealing with the virus. Make sure you are prepared to implement your ship's precautionary plan and to protect yourself and others around you:

- Use insect repellent
- Wear loose fitting, light coloured clothing
- Shower frequently
- Keep mosquitoes out of the vessel
- Keep air conditioning on at all times in the accommodation
- Develop an Integrated Pest Management Plan
- When ashore, avoid areas of stagnant or standing water, forests or swamps
- Ensure that all on board have information and are aware of the problem and solutions
- Ensure the vessel and crew are equipped and prepared
- Ensure everybody is aware of how the virus is transmitted sexually, as well as by mosquito, and appreciate the risks to health posed to unborn children

Stay safe!

## 8. ASSESSMENT QUESTIONS

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Test your knowledge and understanding by completing these multiple choice and TRUE/FALSE questions.

**1. Scientists believe the Zika virus could spread to Europe.**

**TRUE or FALSE?**

**2. The bite of infected mosquitoes can occur:**

- a) In the daytime
- b) At dusk
- c) At night
- d) All of the above

**3. When people contract the Zika virus, how many will develop symptoms?**

- a) All
- b) 1 in 5
- c) 3 in 5
- d) 4 in 5

**4. If symptoms do occur, they usually last:**

- a) 1 day
- b) 4 weeks
- c) 2-7 days
- d) A few hours

**5. People can pass on the Zika virus through sexual contact.**

**TRUE or FALSE?**

**6. Unborn babies will not be affected if their mothers contract the virus.**

**TRUE or FALSE?**

**7. Mosquitoes are attracted to:**

- a) Human breath
- b) Sweat
- c) Foot odour
- d) All of the above

**8. What pain killers should you take if symptoms appear?**

- a) Aspirin
- b) Ibuprofen
- c) Paracetamol
- d) All of the above

**9. Pregnant women should:**

- a) Not worry about Zika virus
- b) Avoid travel to Zika-affected regions
- c) Avoid exercise
- d) Avoid soap

**10. What is the most effective way to reduce mosquito activity?**

- a) Air fresheners
- b) Incense
- c) Insect repellent
- d) Cooking smells

**11. Mosquitoes are attracted to light coloured clothing.**

**TRUE or FALSE?**

**12. To prevent mosquitoes from breeding on board, what should be avoided?**

- a) Dust
- b) Pools of oil
- c) Freshly painted surfaces
- d) Standing water

## 9. ASSESSMENT ANSWERS

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Question no.	Correct answer	Found in section
1	True	2
2	d	3
3	b	4
4	c	4
5	True	3
6	False <i>Current research has strengthened the association between Zika infection and the occurrence of foetal malformations and neurological disorders, particularly microcephaly.</i>	4
7	d	5
8	c	6
9	b	5
10	c	5
11	False <i>Mosquitoes are attracted to dark colours, as they use vision along with scent to locate their targets.</i>	5
12	d	5

## 10. FURTHER RESOURCES

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### Useful websites and publications

World Health Organization (WHO)

[www.who.int/mediacentre/factsheets/zika/en/](http://www.who.int/mediacentre/factsheets/zika/en/)

Centers for Disease Control and Prevention (United States)

[www.cdc.gov/zika/](http://www.cdc.gov/zika/)

International Maritime Organization (IMO)

[www.imo.org/en/MediaCentre/HotTopics/Pages/Zika-virus.aspx](http://www.imo.org/en/MediaCentre/HotTopics/Pages/Zika-virus.aspx)

International Transport Workers' Federation (ITF)

[www.itfglobal.org/media/1312343/zika-itf-factsheet.pdf](http://www.itfglobal.org/media/1312343/zika-itf-factsheet.pdf)

Shipsan

[www.shipsan.eu/Home/Zikavirus.aspx](http://www.shipsan.eu/Home/Zikavirus.aspx)

UK Government

[www.gov.uk/guidance/zika-virus](http://www.gov.uk/guidance/zika-virus)

### Useful organisations

International Chamber of Shipping (ICS)

[www.ics-shipping.org](http://www.ics-shipping.org)

International Maritime Employers' Council (IMEC)

[www.imec.org.uk](http://www.imec.org.uk)

International Maritime Organization (IMO)

[www.imo.org](http://www.imo.org)

International Seafarers' Welfare and Assistance Network (ISWAN)

[www.seafarerswelfare.org](http://www.seafarerswelfare.org)

International Transport Workers' Federation (ITF)

[www.itfglobal.org](http://www.itfglobal.org)

### Related Videotel programmes

Avoid the Bite – Malaria Prevention for Seafarers (Code 1154)

Ebola – Staying Safe (Code 1233)

Elementary First Aid (Edition 2) (Code 989)

Well Travelled? Staying Healthy on Working Trips (Code 599)



# NOTES

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84 NEWMAN STREET | T : +44 (0) 20 7299 1800  
LONDON | F : +44 (0) 20 7299 1818  
W1T 3EU, UK | E : mail@videotel.com  
| W : www.videotel.com

