



SLMA NEWS

THE OFFICIAL NEWSLETTER OF THE SRI LANKA MEDICAL ASSOCIATION

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Dr. Iyanthi Abeyewickreme

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PRESIDENT'S MESSAGE

Many activities conducted in March resulted in another busy month for the SLMA. The monthly clinical meeting on 'Sepsis' held at SLMA in collaboration with the College of Anaesthesiologists and Intensivists of Sri Lanka was extremely well attended and was much appreciated by all. A very topical subject that has been in the limelight globally was addressed in a symposium organized by the Communicable Diseases Expert Committee titled 'No Zika, yet know Zika'. A lecture discussion on 'Responding to gender-based violence victims: responsibilities of health staff' was well received by medical officers and nurses who attended the discussion held at the National Hospital. This event was organized by the Expert Committee on Women's Health to commemorate the International Women's Day.

The first continuing medical education (CME) programme for 2016 for private sector healthcare providers was held at the Hemas Hospital, Thalawathugoda on 30th March. It was also well attended and appreci-

ated. Although there have been no indigenous cases of malaria for the past three consecutive years in Sri Lanka, the SLMA is very concerned of the possibility of a resurgence of malaria in the country. Therefore, at every CME programme a community physician from the Malaria Control Programme is invited to make a presentation on the importance of early detection and treatment of malaria.

The issue of stoppage of renal transplantations on foreigners in private healthcare facilities was discussed at a meeting convened by the SLMA where relevant stakeholders including surgeons, nephrologists and private hospital representatives participated. The SLMA was requested to organize an independent national authorization committee that would be initially responsible for screening donors. Five private hospitals undertaking renal transplants agreed to send their applications through this committee. Final approval will be from the Director General of Health Services (DGHS). The SLMA agreed to discuss this further with the DGHS.

I am pleased to inform the members that the preparations for the Annual Academic Congress are now being finalised. An exciting academic programme has been planned by the Congress co-chairs. We have received over 300 abstract applications which is very encouraging. The Health Run and Walk committee led by Dr Samantha de Silva, has planned many interesting and novel items as part of this activity. We welcome volunteers who would like to assist the Health Run and Walk organizing committee. Those interested please contact the SLMA office or drop an email to office@slma.lk.

For these activities to be successful, it is imperative that the membership of the SLMA participate in their numbers. I therefore, invite all members to extend their fullest cooperation. I wish to conclude by wishing you all very happy and a prosperous Sinhala and Tamil New Year.

Thank you
Dr Iyanthi Abeyewickreme

PATIENT SAFETY:

A REPLY TO PROF CARLO FONSEKA'S ARTICLE IN THE JANUARY ISSUE

Anuruddha M Abeygunasekera
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It is with great interest that I read the article written by Prof Carlo Fonseka in the January issue of the SLMA NEWS. Although he has specifically reprimanded the members of my speciality for trying to ignore patient safety for the sake of safety of budding surgeons, I agree whole heartedly with his arguments for implementing patient safety programmes as a priority in clinical practice! I will be no match for his writing skills, yet I would like to make some suggestions about patient safety, based on my experience as an

employee of the Ministry of Health for over 25 years.

Prof Carlo Fonseka's proposal to make patient safety a component of undergraduate medical curriculum is a timely necessity. Already Sri Lanka Medical Association (SLMA) has sent proposals to that effect to the medical faculties of the country through the University Grants Commission. However education alone is not enough to change behaviour in the majority. We need inducements and continuous supervision for the sustenance of a programme. For example when I was a second year medical student and Prof Carlo Fonseka was the Professor of Physiology at the Colombo

Medical Faculty, to persuade us to study physiology, we had inducements in the form of few distinctions and one gold medal! Many good programmes started by Ministry of Health as well as SLMA have died a natural death due to lack of mechanisms for sustenance. The WHO safety check list ^[1] which was adopted and recommended by the Ministry of Health has lost its steam few years after initiating it island wide. This is despite a circular to that effect from the Director General of Health Services. Even a leading article on patient safety was published in the Ceylon Medical Journal of the SLMA ^[2].

Contd. on page 03

Patient safety...

Yet, hardly anyone uses the WHO check list on safe surgery in an effective manner now.

If we are to make patient safety, a meaningful concept that is being practised effectively, it is mandatory to have a sustainable and an efficient programme. One way to achieve this would be to establish a patient safety centre (PSC) in each hospital to monitor the patient safety activities. PSC should monitor the progress, identify drawbacks, rectify deficiencies and plan for the future. Another important prerequisite of such a programme is the need to reward the compliant health care personnel and units who produce good results. Similar to ethics review committees which ensure safe and ethical research, PSCs should be empowered to approve units with good patient safety records for rewards. Giving priority during allocation of resources by the Health Ministry could be one way of rewarding patient safety compliant units on the recommendations of the PSC. Even now there are quality control units in few hospitals which monitor patient safety practices. Those can be converted to PSCs easily.

PSCs should be manned by doctors, nurses, pharmacists and other necessary staff under an administrative officer equivalent to a deputy director. PSCs can have an advisory committee comprising of senior members of the hospital staff and representatives of the society similar to ethics review committees. Patients and relatives who are not happy with the care they receive should be able to forward their grievances to the PSC for corrective action. Similarly clinicians and hospital staff should be given the opportunity to complain about patients and relatives who make unfair demands and unsafe interventions to the PSC. PSCs should take necessary remedial measures in such situations so that the PSC will win the hearts of the hospital staff allaying their fears as a body threatening their professional independence. This is important as

patient safety is not totally dependent on health care personnel, but on attitudes and actions of patients and society too. This two-way process will ensure patient safety while improving the staff morale which in turn will result in good clinical practice and sound patient care.

Furthermore, PSCs should audit the work and activities of the units in the hospital. PSCs can identify certain indicators that could be measured as markers of patient safety. Units which perform below the expected standards should be helped to improve the performance. PSCs should maintain strict confidentiality in its deliberations similar to ethics review committees and their aim should be to identify deficiencies in the processes rather than individuals. Already individual surgeons' complication rates are available to the public in the British Association of Urological Surgeons website. We may not have to go that far but PSCs should have statistics of individual units for perusal.

Ministry of Health and private hospitals will have to allocate adequate funds for this to be successful, but in the long run this will save much more by avoiding unnecessary investigations, operations and treatment. Already there are multi-disciplinary teams in state hospitals who monitor patient safety activities effectively without any fanfare. Infection control teams and waste disposal monitoring committees are such examples of success. Hence PSCs are a possibility and can be made a reality with good leadership, funding and empowerment.

In the interim period, SLMA can start an online educational programme regarding patient safety based on the WHO Patient Safety Curriculum Guide for Medical Schools [3]. I understand that the Sri Lanka Medical Council (SLMC) is endowed with ample dormant funds and some of that can be used to meet the expenses of formulating the online programme.

Resource personnel can be the experts in bioinformatics and medical education, both are in abundance at the SLMA. Participants can be given a certificate after successful completion of the evaluation process. SLMC can make this certificate mandatory for initial or renewal of registration of medical doctors. The Ministry of Health or other employers can reimburse the course fee of their employees as part of their commitment towards staff development.

References

1. WHO guidelines for safe surgery: safe surgery saves lives. WHO publication, 2009
2. de Silva M, Senanayake S, Sridharan S. Safe surgery: time for a paradigm shift. Ceylon Medical Journal 2013; 58: 139-41
3. WHO Patient Safety Curriculum Guide for Medical Schools, World Health Organisation, 2009 (ISBN 978 92 4 159831 6)

A message from the Editor

We would like to invite the membership of SLMA to contribute to the SLMA news letter by sending articles, picture stories etc. If you are good at drawing cartoons, please do write to us; we are looking for a 'doctor cartoonist'. We would also like to hear your views regarding content of SLMA news letter.

Please send them all to hasini.banneheke@gmail.com or nleditor.slma@gmail.com



"You're looking well."

RECENT ADVANCES IN ENDOVASCULAR TREATMENT OF LOWER LIMB ISCHAEMIA

The guest lecture in April

The guest lecture organized by Dr. Kushlani Jayatileke, Assistance secretary/SLMA was held on 1st April from 12.30pm to 01.30pm at the SLMA Auditorium. Professor Peter Gaines from Sheffield Hallam University, UK delivered the lecture. The abstract of the presentation is given below.

Recent Advances in Endovascular Treatment of Lower Limb Ischaemia

Professor Peter Gaines
Sheffield Hallam University,
Sheffield, UK

Until recently the endovascular options to treat lower limb ischaemia were limited to angioplasty or stent placement. Despite relatively poor patency rates when treating disease below the inguinal ligament this has become the preferred first line treatment.

Late re-occlusion matters. Not only does it result in recurrence of symptoms, but the subsequent need for re-intervention puts the patient at risk and is the principal driver of cost for the health system. In clinical trials CDTLR (clinically driven target vessel revascularisation) is used as a mea-

sure of re-intervention and a surrogate measure of re-occlusion.

Restenosis is the principal cause of late re-occlusion. The last decade has seen a concerted effort to extend the value of revascularisation by restricting the restenosis process in the superficial femoral artery (SFA).

Drug eluting stents were widely used in the coronary system before their application in the peripheral system was confirmed. There is now one drug eluting stent (Zilver PTX) that has combined a nitinol stent and the drug paclitaxel, that has been confirmed by a RCT to improve SFA patency over both the standard of care (angioplasty plus bare metal stent) and the Zilver bare metal stent to 5 years.

A number of drug eluting balloons are now available to restrict restenosis. These systems combine a balloon, carrier (or excipient) and drug (paclitaxel). The excipient assists the transfer of drug into the artery. Whilst a number of commercial studies have been performed perhaps the best known is the IN.PACT SFA study which demonstrated improvement in patency, clinically driven target lesion revascularisation and clinical out-

comes to 2 years.

An understanding of both the bio-mechanics and haemodynamics of the superficial femoral artery can lead to improved patency. Knee flexion results in arterial shortening and twisting of the SFA. Conventional straight stents perform poorly in this environment as they do not allow the normal physiological processes. In addition, blood flow in the human arterial system is not only laminar but helical. This helical flow increases the wall shear stress and reduces the chance of both atherosclerosis and restenosis. The new generation of biomimetic stent has been designed to mimic the performance of the normal artery. The Biomimics 3D stent (Veryan Ltd.) conforms to the arterial system during knee flexion and increases helical flow. It has now been demonstrated in animal work and human RCT to improve patency and reduce the need for reintervention (CDTLR) in the superficial femoral artery.

In conclusion: The last 10 years has witnessed a successful fight against restenosis which will continue to drive the uptake of endovascular interventions to treat lower limb arterial disease.

BE ON ALERT!

A CHANGE OF PLANS FOR POLIO VACCINE

Switching from trivalent OPV to bivalent OPV: Poliomyelitis Endgame Plan

Dr. Deepa Gamage
MBBS, MSc, MD (Community Medicine)
Consultant Epidemiologist
Epidemiology Unit
Ministry of Health

The South East Asia Region has been declared and certified as polio free since March 2014 in line with achieving the goal of world free of poliomyelitis. Polio Eradication through Polio Endgame strategies has been planned to achieve by 2018.

Polio Eradication and Endgame Strategic Plan 2013-2018

Objectives:

1. Detection and interruption of all polio-virus transmission: interruption and outbreak response for wild virus
2. Strengthening of routine Immunization, gradual withdrawal of oral polio vaccine (OPV) and introduction of an additional dose of Inactivated PolioVaccine (IPV); Switching from trivalent OPV (tOPV) to

bivalent OPV (bOPV) and gradual withdrawal of tOPV in phased manner

3. Containment and certification of poliovirus including the Sabin virus (Sabin is the virus used for vaccine production)
4. Legacy planning

Sri Lanka is a country free of polio for more than two decades since the last case of polio in 1993.

Contd. on page 06



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A change of...

The Epidemiology Unit of Ministry of Health is the central coordinating centre for National Acute Flaccid Paralysis (AFP) Surveillance programme under the Poliomyelitis Eradication Initiative receiving information about AFP cases (under 15 years of age) from clinicians in curative institutions. As the reference laboratory virology department in Medical Research Institute (MRI) exclude the possibility of polio in all AFP cases.

Immunization against poliomyelitis is a success story in Sri Lanka. Following first major epidemic, in 1962 OPV was introduced into the country. The OPV vaccine was introduced into the National EPI in 1978 and high OPV coverage is maintained above 90% in all districts in the country for last 10 years or more. The National Programme on Immunization includes 5 doses of OPV at 2, 4, 6, 18 months and 5 years of age until 2015. Supplementary immunization with OPV, in National Immunization Days, Sub National Immunization Days and Mopping up campaigns were conducted during 1995 to 2003 in achieving high population level polio immunity and maintenance of polio free status in the country.

Rationale for the Switch from tOPV to bOPV

In the attempt towards polio Endgame in Sri Lanka, the introduction of an additional dose of injectable polio vaccine (IPV) has been done further to the already given five OPV doses in the National Immunization schedule. Additional IPV dose has been introduced into the National Immunization schedule since 1st July 2015 with the 2nd dose of OPV at 4 months of age. Though the continuation of OPV is being done together with an additional dose of IPV, Sri Lanka has plans together with rest of the world to shift over to the bivalent OPV in 2016.

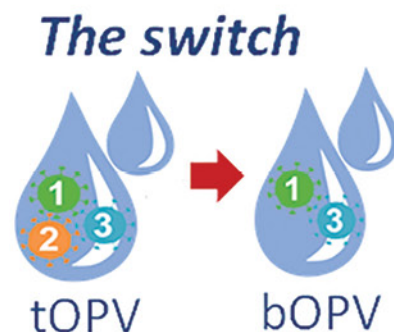
The use of tOPV has led to the eradication of wild poliovirus type 2 component (WPV2), with the last case

occurred in 1999 in the world. But, circulatory vaccine derived poliovirus (cVDPV) and vaccine associated paralytic polio (VAPP) have occurred due to Sabin type 2 component in tOPV. It has been reported that over 90% of cVDPV cases and approximately 40% of VAPP cases are due to the type 2 component of tOPV. cVDPV and VAPP due to polio type 2 component occurred particularly among populations with low polio vaccination coverage in some countries. Low intestinal mucosal immunity lead to person to person intestinal transmission of polio vaccine viruses and viral chain replications and mutations during the transmission cause evolving of cVDPV and VAPP as adverse events.

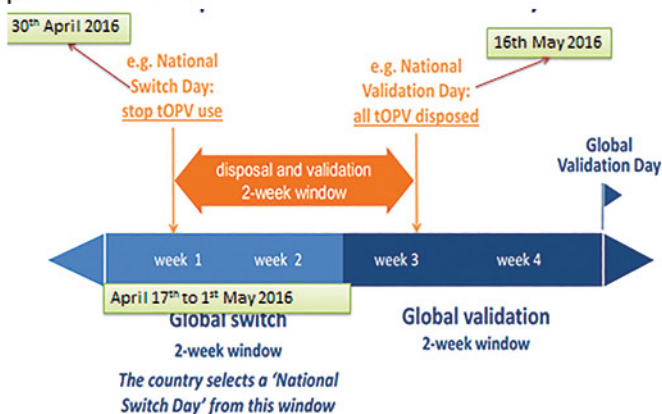
After polio switch from tOPV to bOPV, children will remain without immunity to poliovirus type 2. If an unexpected poliovirus type 2 (VDPV2) case occurs, polio type 2 outbreaks is a possibility. Thus IPV has been introduced as an additional dose during 2015 to reduce possible VDPV2 outbreak risk associated with the withdrawal of OPV type 2 component in tOPV. The IPV will provide the serum immunity even though adequate intestinal immunity would not be achieved. In case of any outbreak, it can be interrupted by using monovalent OPV type 2 component which would stockpile at global level to provide mucosal immunity.

In order to ensure polio eradication, in addition to the wild poliovirus (WPV), all live polioviruses including vaccine viruses have to be removed from the population in a phased manner. The Polio Eradication and Endgame Strategic Plan 2013-2018 highlights the essential requirement of all countries to commit to the removal of type 2 component of polio vaccine by

switching from trivalent OPV (tOPV) which contained Sabin vaccine viruses of type 1,2 and 3 to bivalent OPV (bOPV) which only contains Sabin vaccine viruses of type 1 and 3.



The switch refers to the replacement of all tOPV with bOPV in routine immunization and supplementary immunization activities (SIAs) if any, in all OPV using countries in the world within a selected two week time frame in April 2016 (17th April to 1st May 2016). Each country should select a Switch date and Sri Lanka has selected 30th April 2016 as the polio switch date.



Once the switch is implemented, all existing tOPV stocks will be removed globally and manufacturers will no longer produce or supply any stocks of tOPV. The switch from tOPV to bOPV has to be a globally coordinated synchronized process because any use of tOPV anywhere in the world after April 2016 could jeopardize polio eradication by generating circulating vaccine-derived polioviruses (cVDPV) from the type 2 component of the vaccine.

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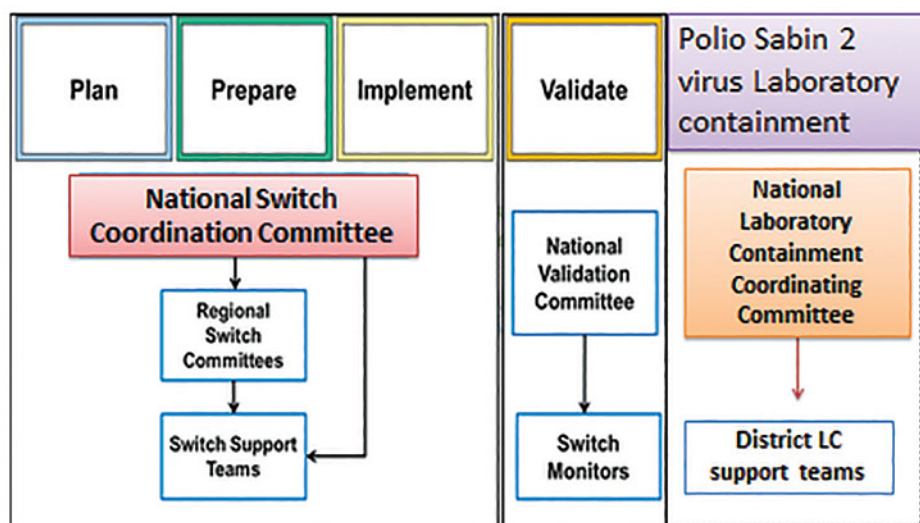
A change of...

Sri Lanka has achieved high level polio immunity in the population. Immunity level assessment has been carried out each type of poliovirus before the switch in Sri Lanka in 2014. A group of 400 children in four age groups (9-11 months, 3-4 years, 7-9 years and 15 years) were assessed by cross sectional community based survey in three districts namely Colombo, Badulla and Killinochchi. Study population included children living in urban slums, plantation estate sector and resettlement areas after 2010 during post-conflict era. The serum samples collected were tested for poliovirus neutralizing antibodies at polio virology laboratory in Center for Disease Control (CDC) Atlanta, USA. The proportion of seropositive children for poliovirus types 1 and 2 was above 95% for all age groups¹. High serological protection suggests that a rare chance for the occurrence of OPV side effects of cVDPV and VAPP (due to possible replications on low intestinal mucosal immunity) in Sri Lanka and assured the country readiness for the polio Switch as high population level polio type 2 immunity.

During the intended polio switch process in Sri Lanka, there will be an exchange of remaining stocks of tOPV with new stocks of bOPV at Regional Medical Supplies Division (RMSD) (at district level) thus there will be no interruption to routine immunization procedure during 28th to 29th April 2016 period. Thereafter from 30th April 2016 onwards only bOPV will be in use in Sri Lanka. All collected tOPV will be handed over within a week to the Epidemiology Unit (at National level) for the destruction by incineration.

Polio switch → recall → dispose & destruct → validate

Once all tOPV stocks from storing centres (RMSD, Medical Officers of Health Offices, hospitals and private health sector institutions) are withdrawn, the validation that the country has successfully destroyed tOPV



stocks and is free of Sabin poliovirus type 2 component will be commenced. District Validation committees will visit all district OPV storing centres. National Validation Committees will visit such centres on selected risk based purposive sampling during the validation procedure.

'National Certification Committee for Polio Eradication and Measles, Rubella, CRS Elimination' (NCCPE & MRCE) is the responsible independent committee in polio switch validation and will declare the final validation to the Regional Certification Committee for Polio Eradication (RCCPE) on 16th May 2016 which will be the country Polio Switch Validation Day. After the switch from tOPV to bOPV measures will be taken for Sabin type 2 component laboratory containment. In that removal of Sabin type 2 component from all potentially hazardous materials for polio will be instigated by destroying all stool samples and respiratory secretions collected for the date identified (3 months after the Polio Switch). The process will be started after 3 months of the Switch date (af-

ter 31st July 2016) followed by laboratory containment validation procedure in the end (plan will be informed with dates). An independent focal point / Chairperson and a committee for the laboratory containment procedure has already been identified by the Ministry of Health and will work as an independent working group throughout the process.

Reference

1. Achieving high seroprevalence against polioviruses in Sri Lanka: results from a serological survey 2014. Journal of Epidemiology and Glob Health 2015. Available online at: <http://www.ncbi.nlm.nih.gov/pubmed/26166424>.
2. National tOPV-bOPV switch plan, Polio Eradication-Endgame strategies Polio Type 2 withdrawal, Epidemiology Unit, Ministry of Health, Sri Lanka, October 2015. http://www.epid.gov.lk/web/images/pdf/Polio/switch_plan_sri%20lanka_updated_nov%202015.pdf



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National Medicinal Drug Authority's Recommendations

National Medicinal Drug Authority (NMDA) wishes to bring the following recommendations to the notice of all medical practitioners.

- Rifampicin should not be provided on long term basis.
- Medical practitioners should limit use of rifampicin as monotherapy.
- Bulk packs of anti TB medicines should not be made available.
- Inappropriate use of 2nd line anti TB drugs like quinolones is to be discouraged.

SLMA Research Grants

The Research Promotion Committee of the SLMA is pleased to call for applications from SLMA members for the following research grants:

FAIRMED Foundation – SLMA Research Grant

Institute for Health Policy – SLMA Research Grant

This grant is funded by the Institute for Health Policy and is offered for a research project in the areas of health economics, health systems and policy research. The maximum financial value of the grant is LKR 100,000.00.

The Deadline for the Applications Extended till 15th of May 2016, 4.30pm

Please Contact SLMA Office for further information.

‘NO ZIKA YET KNOW ZIKA’

Dr. Hasini Banneheke
Secretary/ Expert Committee on
Communicable Diseases of the SLMA

A symposium titled ‘No Zik yet Know Zika’ organized by the Expert Committee on Communicable Diseases of the SLMA was held on 14th March from 11.30am to 1.30pm at Lionel Memorial Auditorium of SLMA to educate the doctors and other health care workers about zika outbreak. Dr.Ranjith Perera, the chairman of the Expert Committee welcomed the audience. Expert Committee member Dr.Rohini Wadanambi, Consultant Microbiologist moderated the session. Specialists who had recent exposure to international experts shared their knowledge with the audience. Dr.Samitha Ginige, Consultant Epidemiologist from Epidemiology unit spoke about the history, current epidemiology, preventive strategies adopted (internationally and locally) and response and preparedness of Ministry of Health while Dr. Geethani Galagoda, Consultant Virologist from




Medical research Institute educated the audience on diagnostic aspect of zika. Dr.Ananda Wijewickrama, Consultant Physician from Infectious Diseases hospital, Angoda explained the modes of transmission, pathogenesis and sequelae, clinical manifestations, treatment and prevention. The symposium was a well attended with



over 110 participants. Expert Committee member Dr. Dr. N.P.S.Gunaratne moderated the interactive discussion session which followed the proceedings. Certificates were awarded to resource persons by senior members of the Expert Committee Dr.Lucian Jayasuriya and Dr.Dennis Aloysius.

The summaries of presentations made at the symposia are given below.



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ZIKA AND AEDES; AN IMPENDING CRISIS?

Dr. Samitha Ginige
Consultant Epidemiologist

History of Zika Virus

The Zika virus was first isolated in 1947 in Zika Forest (Uganda), in a Rhesus monkey during a study of the transmission of wild yellow fever. It was first isolated in humans in 1952 (Uganda, Tanzania).

Zika virus, transmission and clinical sequelae

Zika is a disease caused by the Zika virus, an arbovirus the flavivirus genus (family Flaviviridae). It is phylogenetically very close to viruses such as dengue, yellow fever, Japanese encephalitis and West Nile virus.

Zika virus is transmitted to people through the bite of an infected mosquito from the *Aedes* genus, mainly *Aedes aegypti* in tropical regions. This is the same mosquito that transmits dengue, chikungunya and yellow fever. However, sexual transmission of Zika virus has been described in 2 cases and the presence of the Zika virus in semen in one other case.

The infected individuals may remain asymptomatic or may develop a moderate clinical infection. However no fatal cases have been detected to date.

Epidemiology

- Prior to 2007, only sporadic human cases have been reported from African and southeast Asian regions.
- In 2007 the first major outbreak of Zika virus fever occurred in the island of Yap (Micronesia) where 185 suspected cases were reported, of which 49 were confirmed and 59 were considered probable.
- During 2013–2014 period, over 28,000 suspected Zika virus cases were reported from French Polynesia.
- In year 2015 the Brazilian Ministry of Health reported 0.4–1.3 million estimated cases of suspected Zika virus infection.
- From 1 October 2015 to 20 February 2016, Colombia reported 42 706 suspected cases of Zika virus. Only 1612 were laboratory confirmed.

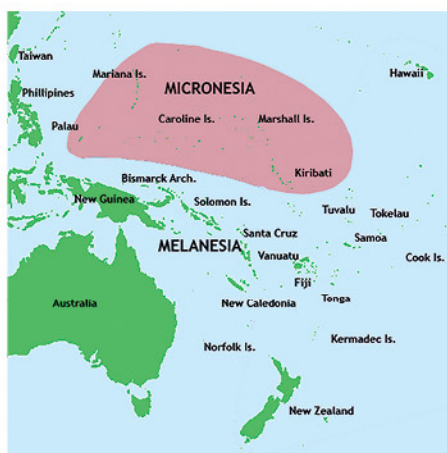


Figure 1: In 2007, first outbreak reported in Yap Island, Federated States of Micronesia

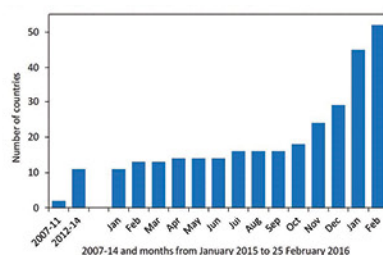


Figure 2: Cumulative number of countries, territories and areas reporting Zika virus transmission, 2007–2014, and monthly from 1 January 2015 to 3 March 2016.

Countries, territories and areas with local transmission of Zika virus, 2007–2016

From 2007 to 3 March 2016, Zika virus transmission was documented in a total of 55 countries and territories.

Classification ^a	WHO Regional Office	Country/Territory/Area
Reported or indication of autochthonous Zika virus transmission AND Guillain-Barré syndrome ^a AND microcephaly ^b (1)	AMRO/PAHO (1)	Brazil
Reported or indication of autochthonous Zika virus transmission, Guillain-Barré syndrome ^a and no reports of microcephaly cases (7)	AMRO/PAHO (7)	Colombia, El Salvador, Venezuela (Bolivarian Republic of), Martinique, Puerto Rico, Panama, Suriname
Reported or indication of autochthonous Zika virus transmission and no reports of Guillain-Barré syndrome or microcephaly cases (39)	AFRO (2) AMRO/PAHO (23) SEARO (3) WPRO (11)	Cabo Verde, Gabon Aruba, Barbados, Bonaire, Bolivia (Plurinational State of), Costa Rica, Curaçao, Dominican Republic, Ecuador, French Guiana, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Saint Martin, Saint Vincent and the Grenadines, Sint Maarten, Trinidad & Tobago, United States Virgin Islands Indonesia, Maldives, Thailand American Samoa, Cambodia, Fiji, Malaysia, Marshall Islands, Philippines, Samoa, Solomon Islands, Tonga, Vanuatu, Lao People's Democratic Republic
Countries/territories/areas with outbreaks terminated (5)	WPRO (4) AMRO/PAHO (1) AMRO/PAHO (1) EURO (2)	Cook Islands, French Polynesia ⁺ , New Caledonia, YAP - Micronesia (Federated States of) ISLA DE PASCUA - Chile United States of America France, Italy
Locally acquired without vector-borne transmission (3)		

This includes 41 countries and territories that reported local transmission during 2015 and 2016, six countries with indirect evidence of viral circulation, five countries with reported terminated outbreaks and three countries with a locally acquired infection (probably through sexual contact) in the absence of any known mosquito vectors (United States of America, France and Italy).

Zika Virus, Microcephaly and Guillain-Barré syndrome

Zika virus, Microcephaly, & Guillain-Barré syndrome status 2007 - 2016



So far Brazil and French Polynesia have reported increased cases of microcephaly and other neonatal malformations during the Zika outbreak period.

Contd. on page 14



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Are we impending...

During 2015 and 2016, eight countries and territories have reported an increased incidence of Guillain-Barré syndrome (GBS) during the Zika outbreak period.

Between October 2015 and February 2016, a total of 5909 cases of microcephaly and/or central nervous system (CNS) malformation were reported by Brazil including 139 deaths. This contrasts with the period from 2001 to 2014, when an average of 163 microcephaly cases was recorded nationwide per year. Of the 5909 suspected cases of microcephaly reported in Brazil, investigations have been concluded for 1687 cases. Among these cases, 1046 were discarded (i.e. not fulfilling the operational case definition of microcephaly and/or CNS malformation associated with congenital infection), 641 were confirmed and 4222 remain is currently under investigation. Zika virus infection was identified in several infants born with microcephaly (including deaths) and in early foetal losses in Brazil. Some of the infants with microcephaly have been tested negative for Zika virus. However exact figures are not yet available.

Zika virus is not yet proven to be a cause of the increased incidence of microcephaly in Brazil. However, given the temporal and geographical associations between Zika virus infections and microcephaly, the repeated discovery of virus in foetal brain tissue and in the absence of a compelling alternative hypothesis, a causal role for Zika virus is a strong possibility that is under active investigation.

WHO response/Recommendations

WHO has declared current Zika virus outbreak as a Public Health Emergency of International Concern (PHEIC) on 1st February 2016 based on its possible association with reported cluster of microcephaly cases and other neurological disorders.

Regarding Zika virus transmission

- Surveillance for Zika virus infection and potential

complications should be enhanced, with the dissemination of standard case definitions and diagnostics to at-risk areas.

- The development of new diagnostics for Zika virus infection should be prioritized to facilitate surveillance and control measures.
- Risk communications should be enhanced in countries with Zika virus transmission to address population concerns.
- Vector control measures and appropriate personal protective measures should be aggressively promoted and implemented to reduce the risk of exposure to Zika virus.
- Attention should be given to women of child-bearing age and particularly pregnant women to have necessary information and material to reduce risk of exposure.
- Pregnant women who have been exposed to Zika virus should be counselled and followed for birth outcomes based on the best available information and national practice and policies.
- Define and prioritize research into Zika virus disease by convening experts and partners.

Regarding travel measures

- There should be no restrictions on travel or trade with countries, areas and/or territories with Zika virus transmission.
- Travellers to areas with Zika virus transmission should be provided with up to date advice on potential risks and appropriate measures to reduce the possibility of exposure to mosquito bites.
- Standard WHO recommendations regarding disinfection of aircraft and airports should be implemented

Regarding data sharing

- Clinical, virologic and epidemiologic data related to the increased rates of microcephaly and/or GBS and Zika virus transmission, should be rapidly shared with WHO to facilitate international understanding of these events, to guide international support for control efforts and to prioritize further research and product development.

Response of Ministry of Health, Sri Lanka

- Closely monitor the global and regional situation on Zika disease
- Guidelines for clinical management, laboratory inves-

Emergence of DF/DHF World-wide

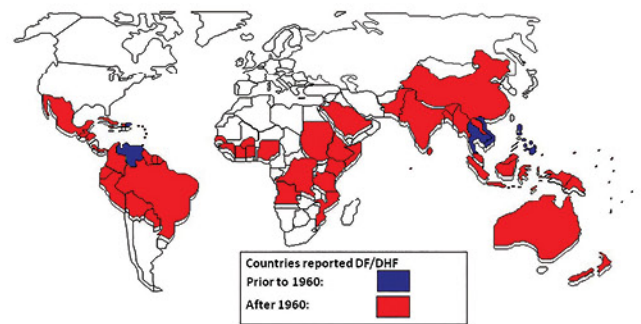


Figure 4: Note the similarity in dengue and Zika outbreaks at the commencement

tigation and surveillance of patients with Zika virus infection have been formulated and distributed to all healthcare institutions. (www.epid.gov.lk)

- Established surveillance mechanism: All suspected Zika virus disease cases should be notified to the respective MOH by the treating physician.

Surveillance case definition

“A patient with a history of travel to an area with current ongoing transmission of Zika disease within the previous two weeks and having two or more of the following symptoms ; acute onset of fever, rash, myalgia, arthralgia and conjunctivitis “

- Diagnostic facilities are established at MRI.
- Health education materials related to Zika disease e.g. Fact sheet, posters (www.epid.gov.lk) have been developed.
- Public are educated on Zika disease through mass media.
- Surveillance activities have been strengthened at Bandaranayake International Airport; Eg: Educating the passengers coming from Zika affected countries, 24 hour health desk to seek advice.
- Surveillance mechanism for microcephaly has been established by Family Health Bureau.
- Acute Flaccid Paralysis surveillance system can be used to monitor GBS incidence if the need arises.

Zika Virus Preventive Measures

- No vaccine or medication to prevent infection or disease
- Primary prevention measure is to reduce mosquito exposure
- Pregnant women should consider postponing travel to areas with ongoing Zika virus outbreaks
- Protect infected people from mosquito exposure during first week of illness to prevent further transmission



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LABORATORY SUPPORT TO IDENTIFY ZIKA

Dr. Geethani Galagoda,
Consultant Virologist,
Medical Research Institute,
Ministry of Health, Sri Lanka

Virology

The Zika virus belongs to the family Flaviviridae of the arboviruses. The genus is flavivirus and the species is Zika virus. They are RNA viruses. The other related viruses in the genus are dengue, chikungunya and yellow fever.

The virus was first discovered in 1947 in the Zika forest in Uganda. The first human case of Zika was detected in 1952. After that, occasional outbreaks have been reported from tropical Africa, Southeast Asia and the Pacific Islands.

Evidence in favour of Zika virus causing microcephaly

Zika virus has been implicated as a cause of congenital infection causing microcephaly. The evidence that favours this fact has come from investigations carried out on autopsies of foetuses suspected to have been infected with Zika. All organs, placenta and the umbilical cord had been tested for histopathology, microbiological studies and electron microscopy. Autopsy of the foetus had showed intra uterine growth retardation (IUGR), microcephaly, placental insufficiency and microencephaly. The neuropathological changes were agyria, internal hydrocephalus, cerebral calcifications and internal degeneration. Indirect immunofluorescence had shown that the virus was present in neurons. Electron microscopy had showed clusters of dense virus-like particles (50 nm) in damaged cytoplasmic vesicles and negative staining of these particles showed viruses of the Flaviviridae family. Indirect Immunofluorescence of foetal brain using mother's antibodies revealed antigens of Zika virus. Real time quantitative PCR by the real time technique had shown Zika virus in the brain. Next generation sequencing revealed the complete genome of



Zika virus. The other indirect evidence was the strong neurotropism of the virus and that the damage by the virus leads to arrested development of the cerebral cortex at the embryonic age of 20 weeks. The mechanism involved in the neurotropism is currently not clear. The placentae had showed focal calcifications but there had not been any pathological changes in other foetal organs.

The methods available for viral diagnosis are

- Virus detection
 - Reverse transcription polymerase chain reaction (RT-PCR)
 - Patient serum - within 05 days of onset of symptoms
 - Urine – up to 03 weeks after onset of symptoms
 - Saliva - within 05 days of onset of symptoms
 - Amniotic fluid – not validated
- Serology
 - IgM antibody / IgG antibody
 - ELISA / immunofluorescence / neutralization
 - Patient serum - from 5th day following onset of symptoms

The Centre for Disease Control and Prevention (CDC) has given guide-

lines for testing of patient samples. According to them, both foetal and infant tissue can be tested. Both formalin fixed and frozen tissues can be used and any organ including brain, placenta, samples from each major organ can be sent to the laboratory for testing. Fixed tissue should be transported with adequate formalin and can be stored and shipped at room temperature. They should not be shipped as frozen samples. Histopathology, immunohistochemical staining and RT-PCR can be performed on these tissues. Frozen tissues should be collected into sterile containers and stored at -70°C and shipped on dry ice. RT-PCR will be performed on these samples.

Body fluids like serum or CSF can be tested for antibody, virus isolation and RT PCR. The required samples are 0.5 ml of serum and/or 1.0 ml of CSF collected into a plastic tube with screw cap. Samples for virus isolation should be frozen as soon as possible at -70°C or in liquid nitrogen. Samples for antibody testing and RT-PCR can be stored and transported at 2-6°C or -70°C. Other body fluids like urine, amniotic fluid, semen, saliva can be tested for Zika virus by RT-PCR and virus isolation, for which 1.0 ml of fluid should be collected in to a sterile container with a screw cap.

Contd. on page 18

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Laboratory support...

Urine samples should be collected prior to collecting semen from male patients. Saliva should be collected with a dry cotton swab in viral transport media. Samples for RT-PCR can be stored and transported at 2-6° C or -70° C and for virus isolation at -70° C or in liquid nitrogen.

RT-qPCR detects RNA however the period of viraemia is short. Asymptomatic and mild infections might go undetected. The other concern is that the test is expensive and choosing patients is a problem. Serological assays are needed as PCR detects RNA which is present only in the first few days of illness. Cross reactions with endemic related viruses have been reported of which, dengue is of special concern in endemic countries. Cross reactions have been reported in yellow fever vaccinees too. There is a dearth of commercially available Zika virus diagnostic tests and also an urgent need for assay capable of differentiating Zika from Dengue.

Diagnosis of Zika in special groups

WHO recommendations for diagnosis of Zika in pregnancy are the same as in the general population. The stage of pregnancy at which congenital malformations can occur with

Zika infection is not known. The special concerns regarding Zika virus infection in pregnancy include whether asymptomatic or minimally symptomatic disease poses risk to the foetus, that early infection results in foetal loss rather than malformations, very late detection of foetal abnormalities by ultra sound scan and not having provision to terminate the pregnancy if abnormalities are detected.

Breast feeding is recommended for mothers who have had Zika virus infection as there are no reported cases of transmission via breast milk. Sexual transmission has been demonstrated in 2 patients and the virus has been detected in semen. Partners of patients with Zika infection should be educated regarding sexual transmission.

Neonates with microcephaly after suspected Zika virus infection should be followed up with regular neuroimaging.

It is important that a safe blood supply be maintained as the virus can be transmitted by blood transfusion. The WHO recommends that blood should be collected from non-affected areas and deferred for 28 days (twice the maximum incubation period) from people who have travelled to suspected areas.

Safe handling of samples

Zika virus is a biosafety level 2 organism and can be handled in the Biosafety cabinet. The standard precautions like hand washing, safe injection practices should be carried out. Surface decontamination can be done with 70% alcohol or sodium hypochlorite with 500 to 5000 ml/L available chlorine. All contaminated items should be autoclaved before disposal.

Laboratory support available in Sri Lanka

The laboratory methods available in Sri Lanka include Real Time PCR assay in blood / serum. The samples should be sent with a brief history including clinical features such as acute fever, skin rash, conjunctivitis, headache, myalgia, arthralgia, history of travel to high risk areas (ongoing transmission) during preceding 2 weeks, day of illness when the blood was collected and results of any other investigations done. Blood should be collected in to an EDTA tube or plain disposable red top tube (minimum volume - 2 ml) within first 5 days of illness and transported at 2 - 80C as soon as possible. If there is a delay, the sample may be stored at 2 - 80C for up to 2 days.

HOW ZIKA MAKES US SICK

Dr. Ananda Wijewickrama
MBBS, MD, MRCP(UK), FCCP
Consultant Physician
National Institute of Infectious Diseases
(Formerly Infectious Diseases Hospital)
SRI LANKA

Originated and spread to.....

Zika virus was first isolated in 1947 from Zika forest in Uganda. (Figure 1 and figure 2)



Figure 1:
The Zika Forest, near Entebbe, Uganda.
(Image courtesy of AP Photo/Stephen Wandera)

TRANSACTIONS OF THE ROYAL SOCIETY OF
TROPICAL MEDICINE AND HYGIENE
Vol. 46, No. 5, September, 1952.

COMMUNICATIONS

ZIKA VIRUS
(I). ISOLATIONS AND SEROLOGICAL SPECIFICITY
BY
G. W. A. DICK,
The National Institute for Medical Research, London
S. P. KITCHEN,
Formerly staff member of the Division of Medicine and Public Health, The Rockefeller
Foundation, New York, U.S.A.
AND
A. J. HADDOW,
Formerly staff member of International Health Division, The Rockefeller Foundation, New
York, U.S.A.
(From the Virus Research Institute, Entebbe, Uganda.)

Medscape Source: Transactions of the Royal Society of Tropical Medicine and Hygiene
Figure 2: Evidence exists that it is a long known disease

Cameroon, Central African Republic, Egypt, Ethiopia, Gabon, Ivory Coast, Kenya, Mozambique, Nigeria, Senegal, Sierra Leone, Somalia, Tanzania, and Uganda)

- in Asia (Cambodia, Indonesia, Malaysia,



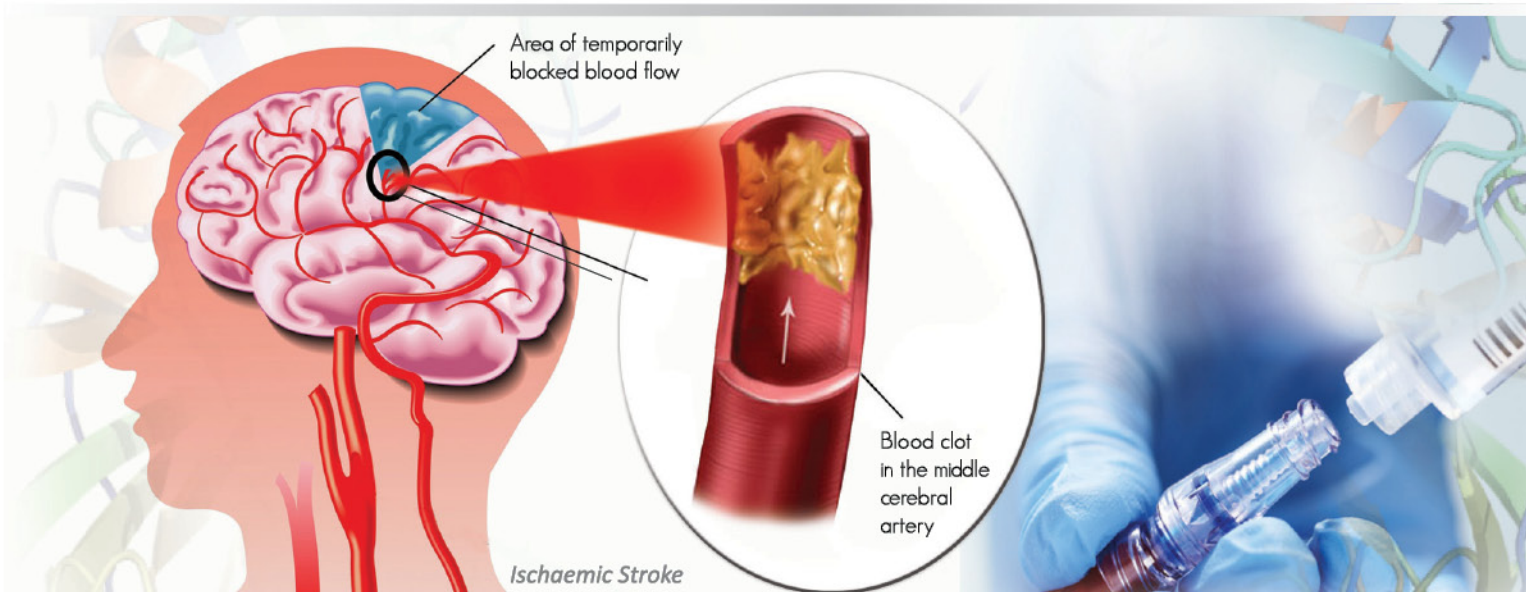
Micronesia, Pakistan, Thailand, and Vietnam). It is a single stranded RNA Virus belonging to Genus flavivirus and Family Flaviviridae. This virus is closely related to dengue, yellow fever, Japanese encephalitis and West Nile viruses.

Contd. on page 20



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A stroke is a 'brain attack', it is when the brain does not get the blood it needs due to a blood clot or a burst vessel. Durdans Hospital introduces Tissue Plasminogen Activator treatment (rtPA) (Clot-Busting Treatment) at its Advanced Heart & Stroke Centre. This clot-busting medication rtPA is given within three hours after stroke symptoms start. The treatment can prevent major disability, speeds up recovery and the adverse effects of a stroke can be minimised or completely reversed with swift treatment.

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ARMS

Weakness
Can they raise
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SPEECH

Difficulty
Is their speech
unclear?



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Symptoms

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rtPA
Treatment

Nursing Care
ICU/Room

Physiotherapy

Return to
normal life



How Zika...

Modes of Transmission

It is primarily transmitted to humans by *Aedes* species mosquitoes. In addition, vertical transmission to the foetus and few cases of sexual transmission is also reported.

- Mosquito Bite
From infected to uninfected humans and primates by bite of a mosquito
- Maternal-foetal
Intrauterine
Perinatal
- Other possibilities
Sexual
Blood transfusion
- Theoretical
Organ or tissue transplantation
Breast milk

Zika Virus Clinical Disease Course and Outcome

Based on sero-surveillance done in Yap island, an attack rate of 73% and a symptomatic attack rate of 18% is calculated. While all age groups are affected, it generally causes only a mild illness. Most common symptoms are a macular-papular rash, fever, arthralgia, conjunctivitis, myalgia and headache. While rash and conjunctivitis are prominent, other symptoms are mild. Lymphadenopathy is another common feature. These symptoms can last several days to a week. Severe disease requiring hospitalization is uncommon. Fatalities are rare.

Differential Diagnosis

- Dengue
- Chikungunya
- Leptospirosis
- Malaria
- Rickettsia
- Parvovirus
- Group A streptococci
- Rubella
- Measles
- Adenovirus
- Enterovirus

A comparison of symptoms & signs of dengue, chikungunya and Zika

	FEVER	RASH	JOINTS	MUSCLE	LYMPHADENOPATHY	CONJUNCTIVITIS
DENGUE	Very high +++	Flushing	Not significant	Severe muscle pain +++	sometimes	May get haemorrhage
CHIKUNGUNYA	High ++	Mild	Severe arthralgia/ +++	not prominent	Not prominent	Not usual
ZIKA	Mild +	Prominent	Arthralgia/ Arthritis ++	Mild +	Prominent	Prominent

Zika Virus and Microcephaly in Brazil

Microcephaly and intracerebral calcification in neonates has been reported following acquired Zika virus infections during pregnancy. In Brazil, following an outbreak of Zika virus infection, significantly increased incidence of microcephaly (over 4,000 babies) has been reported. This was a more than 20-fold increase.

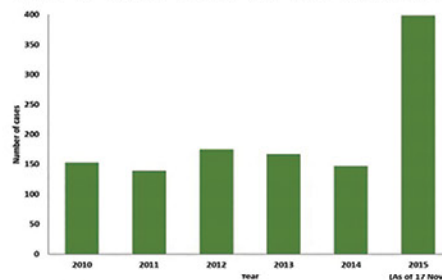


Figure 3: Notified cases of microcephaly in Brazil, 2010-2015

Ref: <http://ecdc.europa.eu/en/publications/Publications/zika-microcephaly-Brazil-rapid-risk-assessment-Nov-2015.pdf>

However causal relationship has not been established as the evidence available are contradictory. Zika virus infection was identified in several infants born with microcephaly (including deaths) and in early foetal losses.

Some of the infants with microcephaly have been tested negative for Zika virus.

- Incidence of microcephaly among foetuses with congenital Zika infection is unknown.
- (Microcephaly can have many causes, not just Zika virus)

In French Polynesia, increased incidence of Guillen Barre syndrome has been reported with an outbreak of Zika virus. However, causal relation-

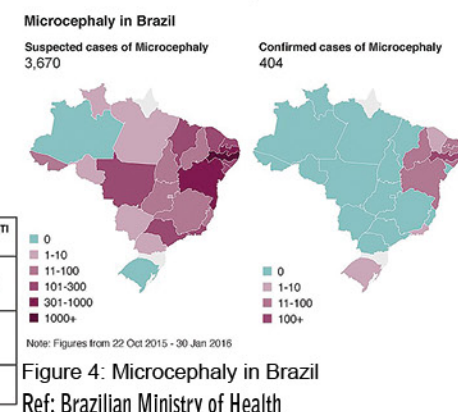


Figure 4: Microcephaly in Brazil
Ref: Brazilian Ministry of Health

ship is yet to be determined. (Figure 4)

Zika Virus and Pregnancy

Limited information is available on this. However the existing data show that,

- Incidence of Zika virus in pregnancy is not known
- Can occur in any trimester
- No evidence of increased susceptibility Infection
- No evidence of more severe disease

Existing evidence of maternal-foetal transmission

- Zika virus infection was confirmed in infants with microcephaly in Brazil
- Zika virus infection was confirmed in infants whose mothers have travelled to Brazil but delivered in the US
- Zika virus RNA was identified in specimens of foetal losses
- Zika virus Detected prenatally in amniotic fluid
 - Two women at 30 weeks of gestation with a history of symptoms consistent with Zika infection
 - Foetal microcephaly and intracranial calcifications were detected on ultrasound.
 - Amniotic fluid testing was positive for Zika virus RNA by RT-PCR

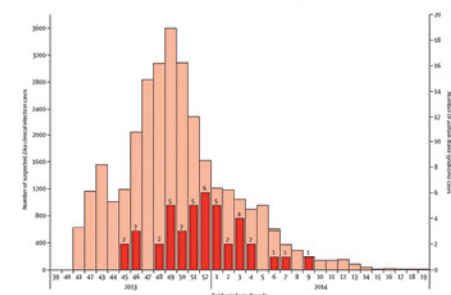


Figure 5: Weekly cases of suspected Zika virus infections and Guillain-Barré syndrome in French Polynesia between October 2013 and April 2014

Ref: [http://thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)00562-6/fulltext](http://thelancet.com/journals/lancet/article/PIIS0140-6736(16)00562-6/fulltext)

Questions yet to be answered

Many questions related to Zika virus infection is yet to be answered. The incidence of maternal-foetal transmission in each trimester, need and implications of testing of asymptomatic pregnant women, risk of microcephaly and other foetal and neonatal outcomes and risk of Guillain-Barré syndrome are some of them.

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Zika virus and observed increase in neonatal malformations - Microcephaly surveillance in neonates

WHO has announced that the recent cluster of neurological disorders and neonatal malformations reported in the Americas region constitutes a Public Health Emergency of International Concern. A causal link between this cluster and Zika virus disease is strongly suspected. It constitutes an "extraordinary event" and a public health threat to other parts of the world. As such, WHO advises surveillance for microcephaly and Guillain-Barré Syndrome are to be standardized and enhanced, particularly in areas of known Zika virus transmission and areas at risk of such transmission.

Considering the country's possible at risk of Zika virus transmission, an expert working group including community physicians, paediatricians, neonatologists, geneticists, virologists and administrators, emphasized the need of microcephaly surveillance in neonates and developed a surveillance format.

Microcephaly Case Definition: An Occipito-Frontal Circumference (OFC) less than 3rd centile for the gestational age disproportionate to other anthropometric variables in a baby born dead or in a living neonate or died within 28 days after birth. (ie. Case capture period is from birth to 28 days after birth).

You are advised to inform of the need for microcephaly surveillance to all relevant specialists (eg. Paediatricians / Neonatologists / Obstetricians / Pathologists / Forensic Pathologists / Geneticists) and medical officers under your purview. All such cases should be notified within 48 hours using the attached format by post / phone / fax / email to: *Director / Family Health Bureau (Fax: 0112692745 / 0112690790)* and *Regional Director of Health Services (of mother's residence)* with effect from 1st February 2016.

The format can be downloaded from Family Health Bureau website: <http://fhb.health.gov.lk/>


Dr. P.G. Mahipala
Director General of Health Services
Ministry of Health, Nutrition & Indigenous Medicine
"Suwasiripaya"
385, Ven. Baddegama Wimalawansa Thero Mv
Colombo 10.

Copy: Hon. Minister of Health
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EPINEPHRINE (ADRENALINE) AUTO-INJECTORS

Professor Suranjith L Seneviratne
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University College London
Department of Surgery,
Faculty of Medicine,
University of Colombo

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An Epinephrine auto-injector delivers a single dose of epinephrine. It is designed for easy administration to a person having a severe allergic reaction (anaphylaxis) to foods, insect stings or bites, drugs, other allergens or for treating exercise-induced anaphylaxis. Epinephrine is the only recommended first-line treatment for anaphylaxis.

Steps for administering an epinephrine using an auto-injector

1. Form a fist around the auto-injector with the tip pointing down (do not put your thumb, fingers, or hand over the needle area of the device).
2. Pull the safety cap off.
3. Place the tip over the middle of the outer side of your thigh.
4. Push the auto-injector firmly against your thigh. The needle is released and begins injecting the dose of epinephrine.
5. Hold the auto-injector in place for 10 seconds after activation.
6. Remove the auto-injector from your thigh and massage the area gently.
7. Carefully place the used device into the carrying tube and take it with you to the hospital. This should help the medical team know how much epinephrine you have received.

Important advices to be given to your patient

You should carry your Epinephrine

auto-injectors with you at all times.

An Epinephrine auto-injector should be used if you develop signs or symptoms of anaphylaxis.

A doctor must advise you on how an acute allergic reaction should be managed and how and when an epinephrine auto-injector device should be used. You should also read the patient information sheet that comes with the device.

It is best if your family, friends and teachers (in the case of a child) know how and when to give this medication, in case you are unable to give it yourself.

If possible a training device should be sourced, so that the technique of administration could be practiced at regular intervals.

The Epinephrine autoinjector should only be injected in the middle of the outer side of your thigh. Do not inject epinephrine into your buttocks or any other part of your body.

In an emergency, this injection can be given through your clothing.

If the autoinjector is accidentally injected into your fingers, hands, toes or feet, seek immediate medical treatment.

A single autoinjector should only be used on one occasion. Do not try to re-insert an auto-injector a second time, if the needle has come out of your skin

before the full 10 seconds.

After you inject a dose of epinephrine, some solution will remain in the injection device. This is normal and does not mean that you did not receive the full dose.

The general recommendation is for a patient to carry two auto-injectors with them at all times. In the absence of clinical improvement or if your symptoms continue to worsen after the first injection, a second epinephrine auto-injector may be administered after 5 – 15 minutes.

Adrenaline is a short-acting drug and its effects wear off quite quickly. After you receive an epinephrine via an auto-injector, you should be taken to a hospital to receive further treatment and observation.

Be aware of the expiry date stamped on the device. Replace the device when this date is reached. Look at the solution in the device from time to time. If the solution is discoloured or contains particles, get a new device.

Types of epinephrine auto-injector

Some properties of the commonly available epinephrine auto-injectors are given in Table 1.

Table 1

	Dosage forms	Needle length	Shelf life (max) from the date of manufacture	Storage	Other information
EPIPEN	300mcg - for children and adults weighing 30kg+ 150mcg - for children weighing between 15kg-30kg	15.02mm 12.7mm	18 months	Do not: store above 25°C, refrigerate or freeze.	Shel Kaplan invented the EpiPen (between 1965 to 1978) as a tool for the military
JEXT	300mcg (licensed for 30kg+) 150mcg (licensed for 15kg-30kg)	15.36mm 12.7mm	18 months	Do not: freeze	Needle shield extends after use
EMERADE	150mcg (for children under 6 years) 300mcg (age 6 - 12 years) 500mcg (over 12 years)	16mm 25mm	30 months	Do not: freeze	Doses based on RCUK* Guidelines for Healthcare providers

mcg: microgram

* RCUK - Resuscitation Council United Kingdom



CONTINUING MEDICAL EDUCATION PROGRAMME FOR 2016

The first continuing medical education (CME) programme for 2016 for private sector healthcare providers was held at the Hemas Hospital, Thalawathugoda on 30th March.



**MALARIA
COUNT
2016**

16

Cases up to April 2016

All cases are imported !

**Let's keep
Sri Lanka
Malaria free**



GENERATION GAP

Generation gap is a gap of communication that leads to misunderstanding and disharmony. It refers to the gap between young and old. It is about mindsets and methods and it is not one-sided. Youth is full of passion and drive and is risk-friendly. The old have wisdom and experience and they are risk-averse. So, work together.

Just passion and risk-taking are not enough; neither are experience and wisdom because we live in a dynamic world. Strategies have to change and for this we need understanding and flexibility. The older and younger generations need to communicate, synergise and draw the best from each other. A healthy conversation and dialogue is essential to bridge the gap.

Sometimes adults behave like children and even need to be taken care of. Sometimes they want to pamper their children; at other times they expect children to behave like adults. Isn't this confusing?

Use the power of love and then you will know how to deal with old people. Yes, as they get old they behave like children. Give them love and understanding. Learn to enjoy dealing with them. They are also going through transition. Be committed and compassionate then you will get the right mode to help them. "He gives not the best, who gives the most but he gives the most who gives the best". Learn to give your best. Be the giver and then that giving itself enhances the quality of life. What is wrong if you pamper your parents? After all it is their second childhood. Don't you pamper your children? Don't use too much of logic but just shower love.

(The Speaking Tree)



May all beings be Well and Happy !

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* Thorax 2012;67:266e267. doi:10.1136/thorax-2011-201522
* Top 100 Selling Drugs of 2013. Medscape. Jan 30, 2014.

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Children should be dosed as per weight

Panadol
Brand of paracetamol

for **children**



Recommend **correct dose**
variant for children*



It's always accurate and
easier with syrup



- Medications, dosages must be carefully titrated and maintained to prevent either adverse effects or therapeutic failure¹
- Patients may split the tablets unevenly and experience adverse effects from an excessively high dosage or exacerbation of the disease from a dosage that is too low¹

* Recommend to dose children below the age of 12 years by their weight as per the dosage chart * Use as directed on pack.

REFERENCE: 1 American Society of Consultant Pharmacists, *Tablet Splitting for Cost Containment*, <http://www.ascp.com/print/116>

Do not exceed recommended dose and frequency, as excessive dosage could be harmful to the liver. If symptoms persist, consult your doctor.

For adverse events reporting please call on 0114790400 or e-mail on lk.pharmacovigilance@gsk.com. PANADOL is a trade mark of the GSK group of companies. © 2016, GSK group of companies



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THE OFFICAL NEWSLETTER OF THE SRI LANKA MEDICAL ASSOCIATION

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