UPDATE ON CLINICAL PRACTICES :
FROM THE FIRST 1000 DAYS OF LIFE TO ADOLESCENT

Bagian Ilmu Kesehatan Anak FK UNS/RSUD Dr. Moewardi Surakarta

Curriculum Vitae

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Bagian Ilmu Kesehatan Anak FK UNS/ RSUD Dr Moewardi

Pendidikan

- Dokter umum : FK UNISSULA 2008
- Spesialis anak : FK UNS 2014
- S2 : Magister Kedokteran Keluarga Pascasarjana UNS 2014

Keanggotaan :

- Anggota UKK Infeksi dan Penyakit Tropis IDAI
- Anggota KPRA RSUD Dr Moewardi Surakarta
- Anggota International Society of Infectious Disease (ISID)

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DIAGNOSIS DAN TATALAKSANA DEMAM BERDARAH DENGUE BERDASARKAN WHO 2009

Husnia Auliyatul Umma

Topik Pembahasan

- Epidemiologi/ transmisi virus dengue
- Latar belakang penggunaan klasifikasi WHO 2009
- *International Classification of Disease*-11 (ICD-11)
- Klasifikasi diagnosis – tatalaksana kasus dengue berdasarkan WHO 2009
- Simpulan

Negara dengan risiko transmisi virus dengue

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines or maps represent approximate border lines for which there may not yest be fill agreement.

Data Source: World Health Organization Map Production: Public Health Infrmation and Geographic Information Systems (GIS) World Health Organization

World Health Organization

another by infected travelers.

Distribution trends

Before 1970, only 9 countries had experienced severe dengue epidemics. The disease is now endemic in more than 100 countries in the WHO regions of Africa, the Americas, the Eastern Mediterranean, South-East Asia and the Western Pacific. The America, South-East Asia and Western Pacific regions are the most seriously affected.

Cases across the Americas, South-East Asia and Western Pacific exceeded 1.2 million in 2008 and over 3.34 million in 2016 (based on official data submitted by Member States). Recently the number of reported cases has continued to increase. In 2015, 2.35 million cases of dengue were reported in the Americas alone, of which 10 200 cases were diagnosed as severe dengue causing 1181 deaths.

Not only is the number of cases increasing as the disease spreads to new areas, but explosive outbreaks are occurring. The threat of a possible outbreak of dengue fever now exists in Europe as local transmission was reported for the first time in France and Croatia in 2010 and imported cases were detected in 3 other European countries. In 2012, an outbreak of dengue on the Madeira islands of Portugal resulted in over 2 000 cases and imported cases were detected in mainland Portugal and 10 other countries in Europe. Among travellers returning from low- and middle-income countries, dengue is the second most diagnosed cause of fever after malaria.

In 2015, Delhi, India, recorded its worst outbreak since 2006 with over 15 000 cases. The Island of Hawaii, United States of America, was affected by an outbreak with 181 cases reported in 2015 and ongoing transmission in 2016. The Pacific island countries of Fiji, Tonga

World Health Organization | Health Topics | Countries | Newsroom | Emergencies

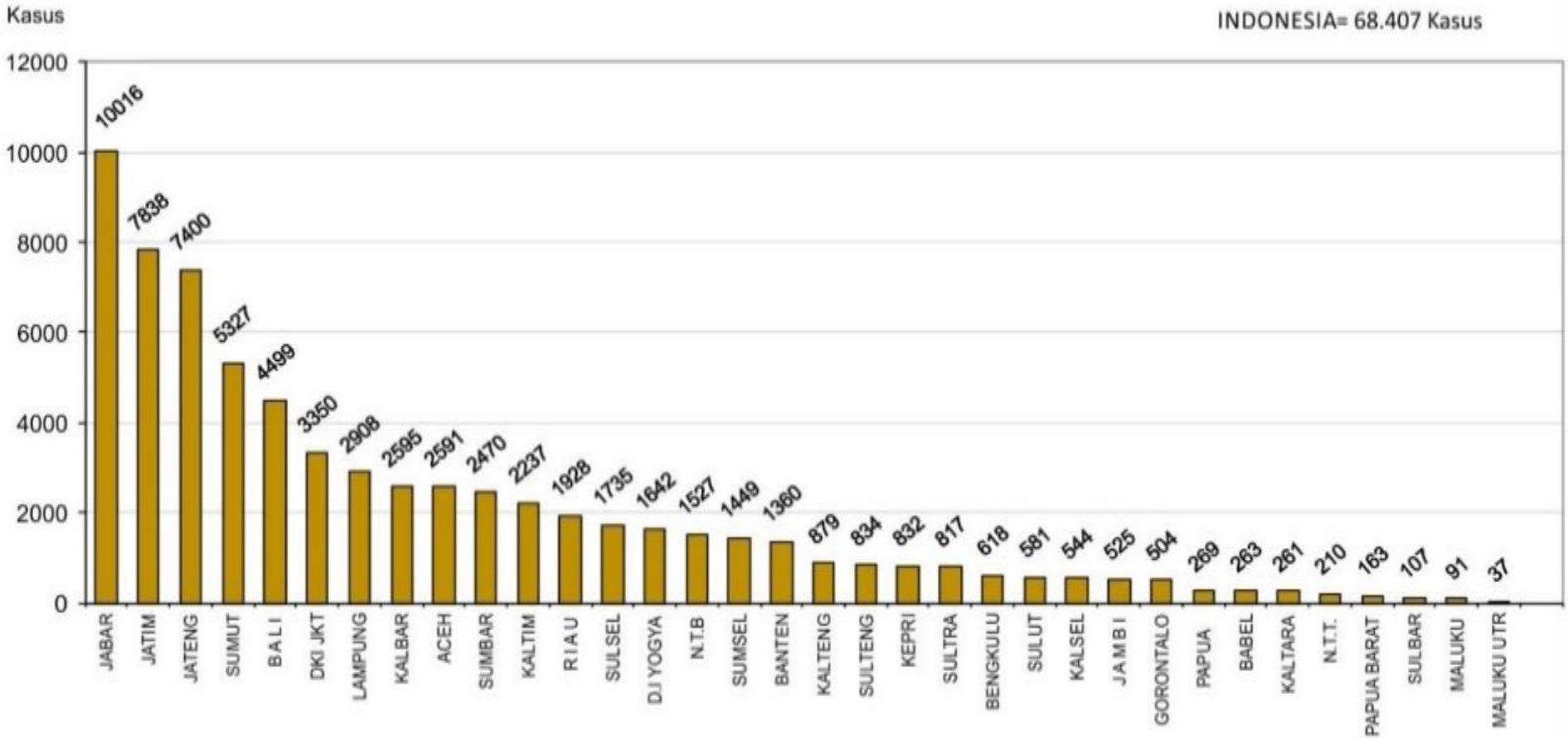
The year 2016 was characterized by large dengue outbreaks worldwide. The Region of the Americas region reported more than 2.38 million cases in 2016, where Brazil alone contributed slightly less than 1.5 million cases, approximately 3 times higher than in 2014. 1032 dengue deaths were also reported in the region. The Western Pacific Region reported more than 375 000 suspected cases of dengue in 2016, of which the Philippines reported 176 411 and Malaysia 100 028 cases, representing a similar burden to the previous year for both countries. The Solomon Islands declared an outbreak with more than 7000 suspected. In the African Region, Burkina Faso reported a localized outbreak of dengue with 1061 probable cases.

In 2017, a significant reduction was reported in the number of dengue cases in the Americas - from 2 177 171 cases in 2016 to 584 263 cases in 2017. This represents a reduction of 73%. Panama, Peru and Aruba were the only countries that registered an increase in cases during 2017. Similarly, a 53% reduction in severe dengue cases was also recorded during 2017. The post Zika outbreak period (after 2016) has seen a decline of cases of dengue and the exact factors leading to this fall decrease is still unknown. WHO's Western Pacific Region has reported dengue outbreaks in several countries in the Pacific, as well as the circulation of DENV-1 and DENV-2 serotypes.

After a drop in the number of cases in 2017-18, sharp increase in cases is being observed in 2019. In the Western Pacific region, increase in cases have been observed in Australia, Cambodia, China, Lao PDR, Malaysia, Philippines, Singapore, Vietnam while Den- 2 was reported in New Caledonia and Den-1 in French Polynesia. Dengue outbreaks have also been reported in Congo, Côte d'Ivoire, Tanzania in the African region; Several countries of the American region has also observed an increase in the number of cases.An estimated 500 000 people with severe dengue require hospitalization each year, and with an estimated 2.5% case

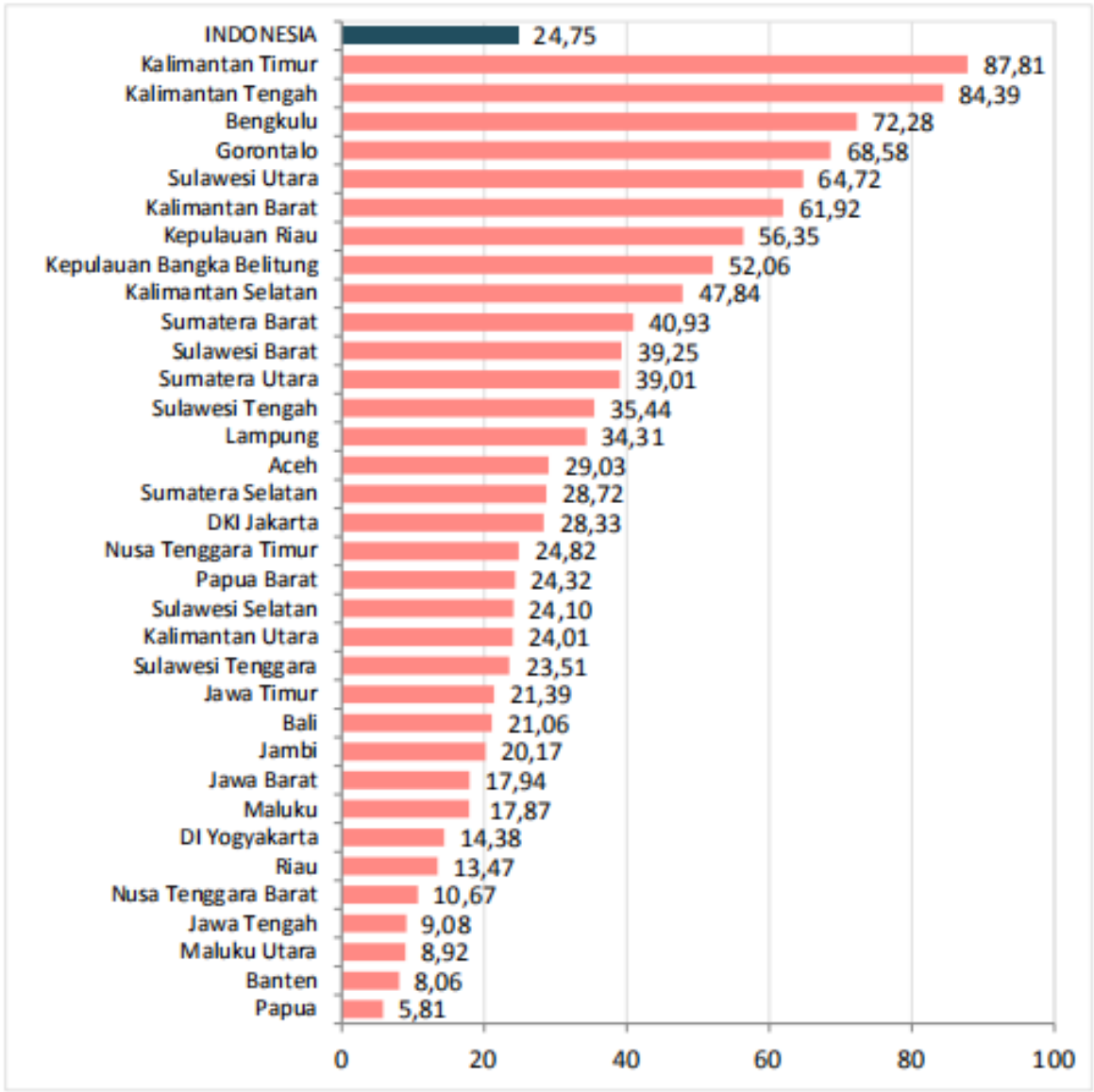
RSDM

Kasus Demam Berdarah Dengue di Indonesia, 2017



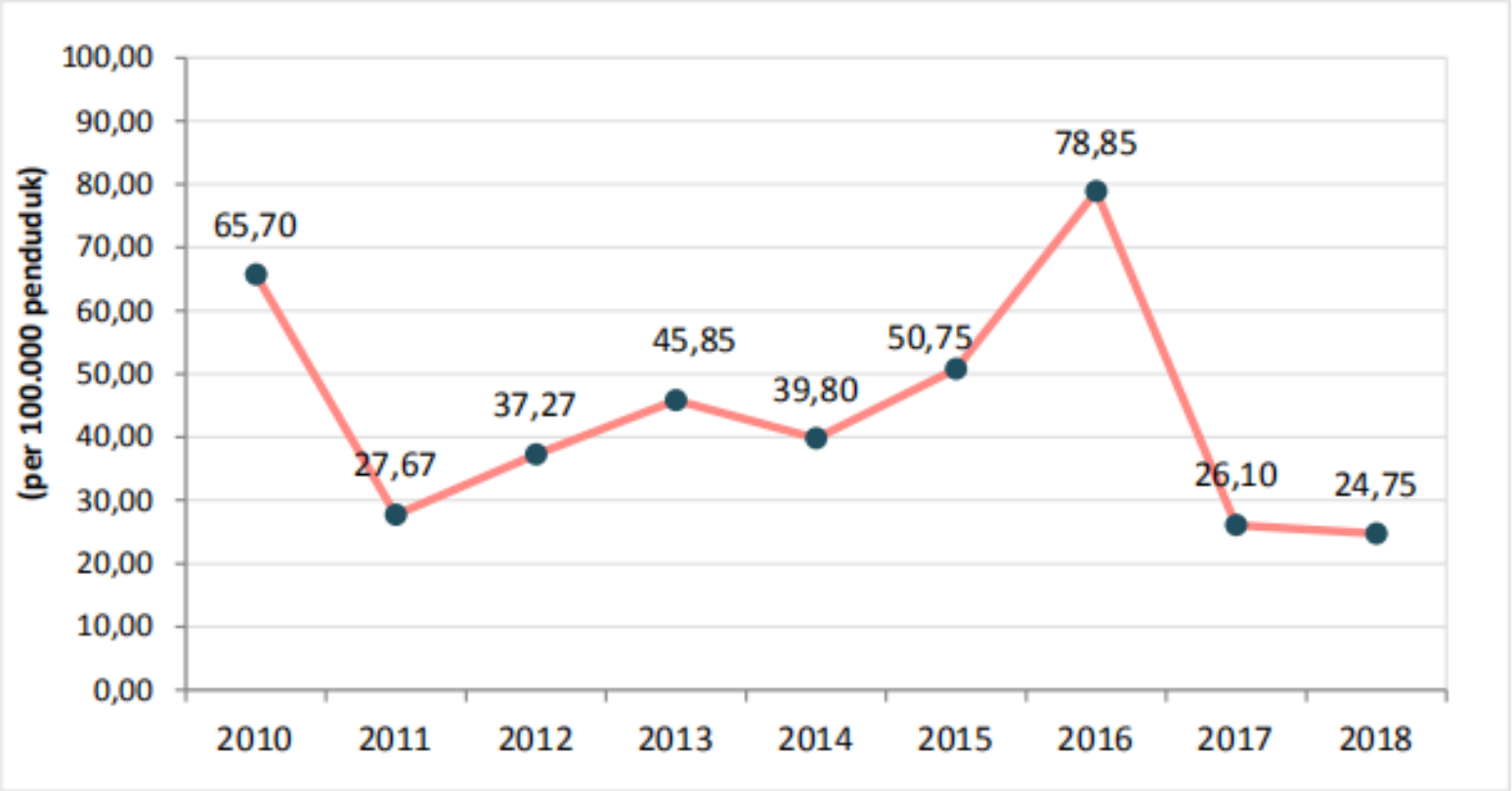
Kemenkes RI, 2017

ANGKA KESAKITAN DEMAM BERDARAH DENGUE PER 100.000 PENDUDUK MENURUT PROVINSI TAHUN 2018



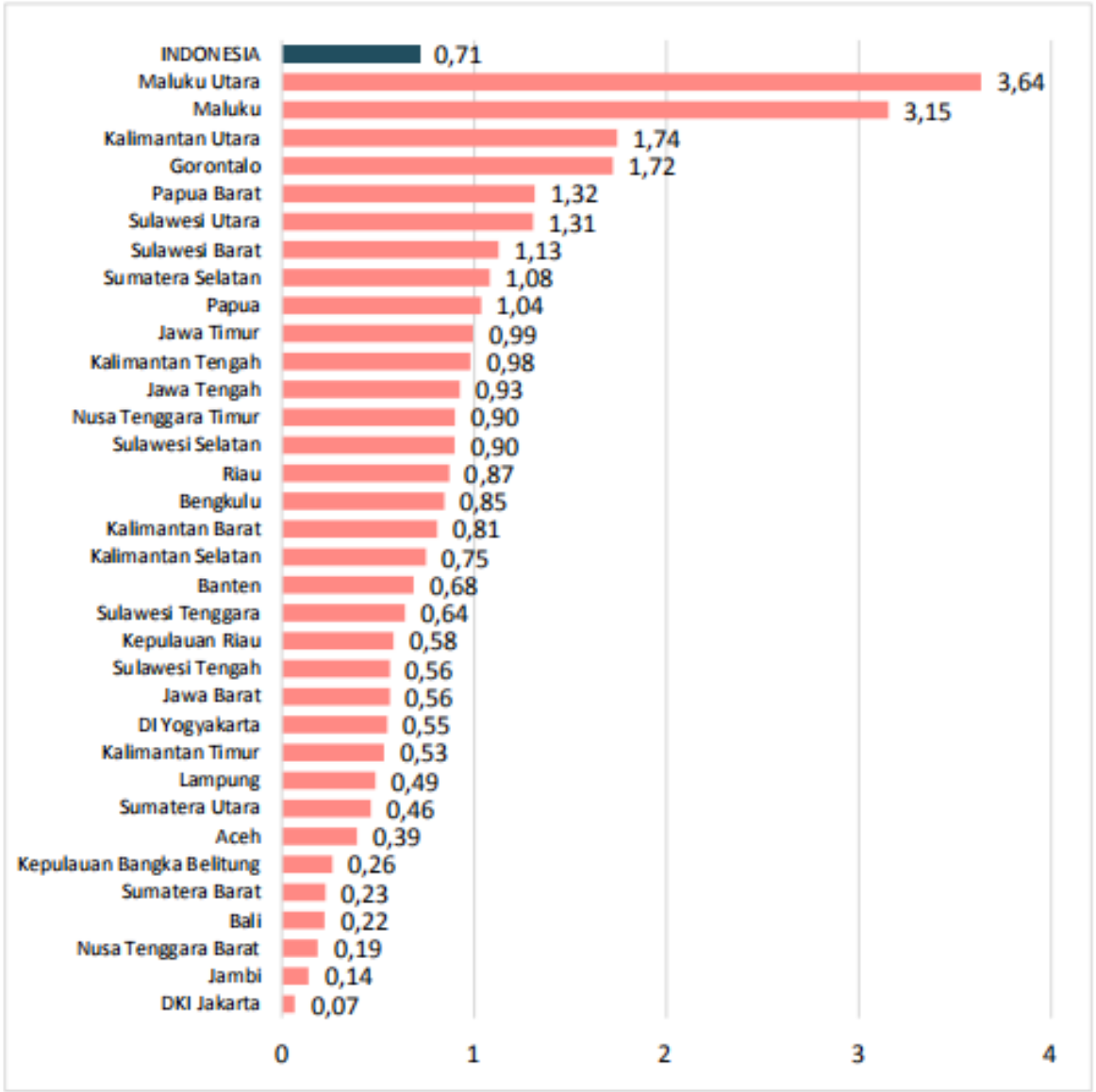
Sumber: Ditjen P2P, Kemenkes RI, 2019

ANGKA KESAKITAN DEMAM BERDARAH DENGUE PER 100.000 PENDUDUK TAHUN 2010-2018



Sumber: Ditjen P2P, Kemenkes RI, 2019

CASE FATALITY RATE DEMAM BERDARAH DENGUE MENURUT PROVINSI TAHUN 2018



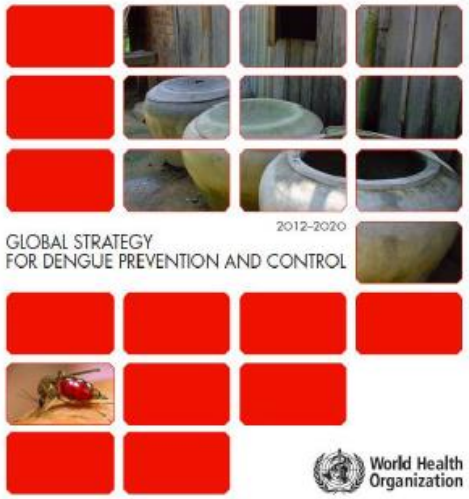
Sumber: Ditjen P2P, Kemenkes RI, 2019

Global strategy for dengue prevention and control, 2012–2020

Peningkatan kasus 30 kali lipat dalam 50 tahun terakhir

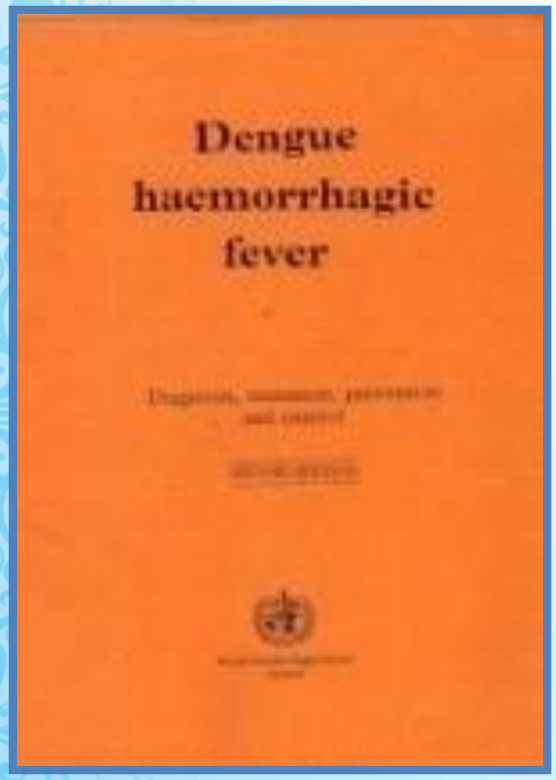
- Menurunkan mortalitas sebesar 50% pada tahun 2020
- Menurunkan morbiditas sebesar 25% (dibanding tahun 2010)

Deteksi dini dan tatalaksana adekuat kasus berat/ severe dengue termasuk saat terjadi *outbreaks*

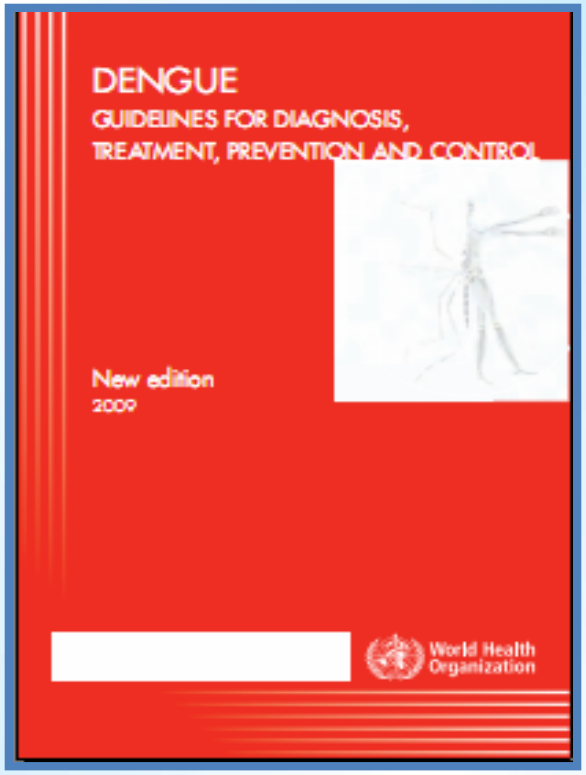


WHO, 2012

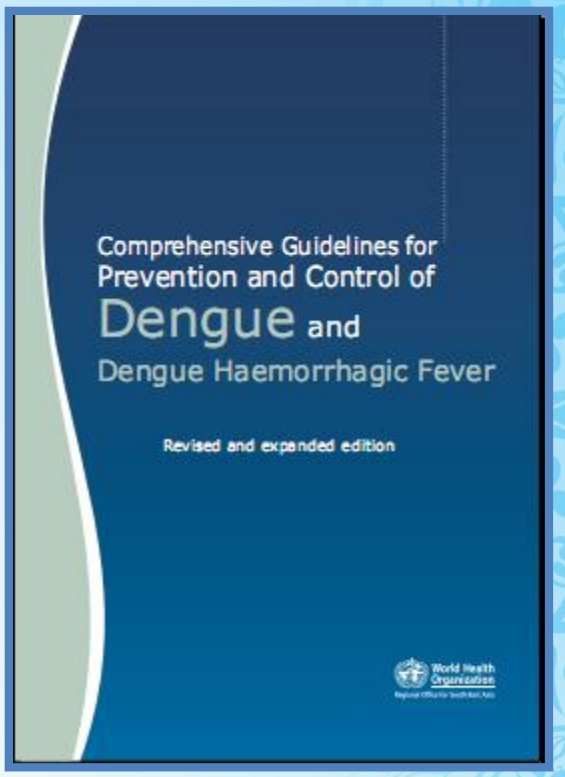
WHO dengue guidelines



1997



2009



2011

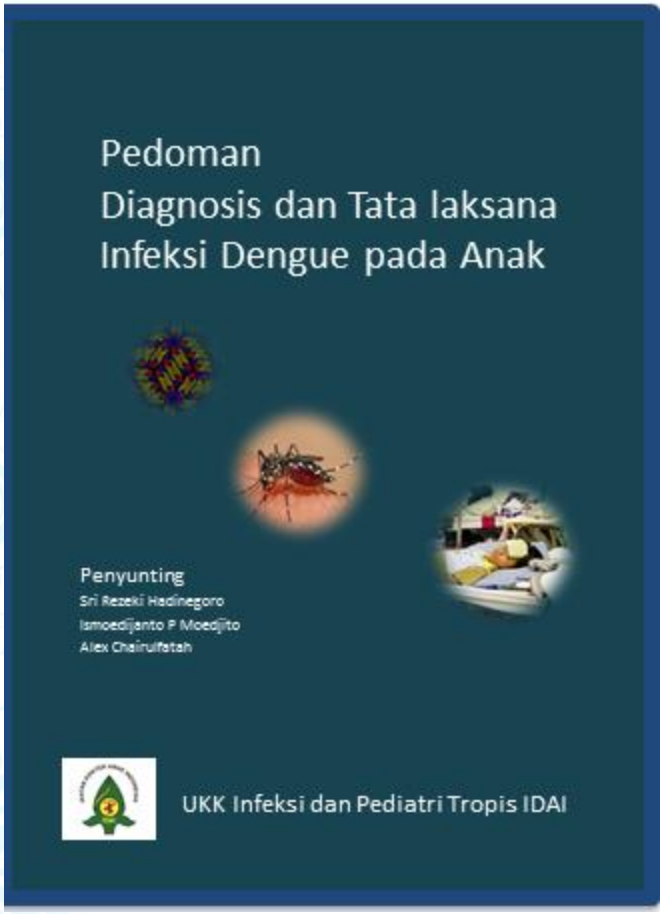
WHO dengue guidelines

WHO 1997	WHO 2009	WHO SEARO 2011
• Dasar epidemiologi • Patogenesis dengue • Diagnosis dan tatalaksana kasus • KLB dengue • Kontrol vektor dengue	• *Warning signs*→ menemukan kasus dengue • Klasifikasi dengue berdasarkan derajat keparahan • Tatalaksana pasien berdasarkan derajat keparahan/ saverity	• Mendeteksi tanda awal syok melalui *warning signs* • Penggolongan expanded dengue syndrome • Penilaian A-B-C-S dalam tatalaksana dengue

Klasifikasi diagnosis dengue sesuai WHO

1997	2009	2011
Dengue fever	*Dengue without warning signs*	*Dengue fever*
DHF grade I	*Dengue with warning signs*	*DHF grade I*
DHF grade II		*DHF grade II*
DHF grade III	*Severe dengue (severe plasma leakage, severe hemorrhage, severe organ involvement)*	*DHF grade III*
DHF grade IV		*DHF grade IV*
		** Expanded dengue syndrome*
	Adult management	*Adult management*

Pedoman diagnosis dan terapi infeksi dengue pada anak



Penulis :

UKK Infeksi dan Penyakit Tropis IDAI

Penerbit :

Badan Penerbit IDAI 2014

Am. J. Trop. Med. Hyg., 91(3), 2014, pp. 621–634
doi:10.4269/ajtmh.13-0676

Comparing the Usefulness of the 1997 and 2009 WHO Dengue Case Classification: A Systematic Literature Review

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Abstract. The 1997 and 2009 WHO dengue case classifications were compared in a systematic review with 12 eligible studies (4 prospective). Ten expert opinion articles were used for discussion. For the 2009 WHO classification studies show: when determining severe dengue sensitivity ranges between 59–98% (88%/98%: prospective studies), specificity between 41–99% (99%: prospective study) - comparing the 1997 WHO classification: sensitivity 24.8–89.9% (24.8%/74%: prospective studies), specificity: 25%/100% (100%: prospective study). The application of the 2009 WHO classification is easy, however for (non-severe) dengue there may be a risk of monitoring increased case numbers. Warning signs validation studies are needed. For epidemiological/pathogenesis research use of the 2009 WHO classification, opinion papers show that ease of application, increased sensitivity (severe dengue) and international comparability are advantageous; 3 severe dengue criteria (severe plasma leakage, severe bleeding, severe organ manifestation) are useful research endpoints. The 2009 WHO classification has clear advantages for clinical use, use in epidemiology is promising and research use may at least not be a disadvantage.

Tropical Medicine and International Health

VOLUME 16 NO 8 PP 936–948 AUGUST 2011

Multicentre prospective study on dengue classification in four South-east Asian and three Latin American countries

Neal Alexander[1,#], Angel Balmaseda[2], Ivo C. B. Coelho[3], Efren Dimaano[4], Tran T. Hien[5], Nguyen T. Hung[6], Thomas Jänisch[7], Axel Kroeger[8], Lucy C. S. Lum[9], Eric Martinez[10], Joao B. Siqueira[11], Tran T. Thuy[12], Iris Villalobos[13], Elci Villegas[14] and Bridget Wills[15] on behalf of the European Union, World Health Organization (WHO-TDR) supported DENCO Study Group*

Summary

OBJECTIVE To evaluate the existing WHO dengue classification across all age groups and a wide geographical range and to develop a revised evidence-based classification that would better reflect clinical severity.

METHODS We followed suspected dengue cases daily in seven countries across South-east Asia and Latin America and then categorised them into one of three intervention groups describing disease severity analysis plan, ories and nt group of comparing se who

RESULTS A total of 2259 patients were recruited during 2006–2007 and 230 (13%) of the 1734 laboratory-confirmed patients required major intervention. Applying the existing WHO system, 47/210 (22%) of patients with shock did not fulfil all the criteria for dengue haemorrhagic fever. However, no three-tier revision adequately described the different severity groups either. Inclusion of readily discernible complications (shock/severe vascular leakage and/or severe bleeding and/or severe organ dysfunction) was necessary to devise a system that identified patients requiring major intervention with sufficient sensitivity and specificity to be practically useful. Only a small number of subjects (5%) progressed to severe disease while under observation; several warning signs were identified, but much larger studies are necessary to fully characterize features associated with disease progression.

CONCLUSIONS Based on these results, a revised classification system comprised of two entities, 'Dengue' and 'Severe Dengue', was proposed and has now been incorporated into the new WHO guidelines.

Klasifikasi WHO 1997 sulit diterapkan

Issue?

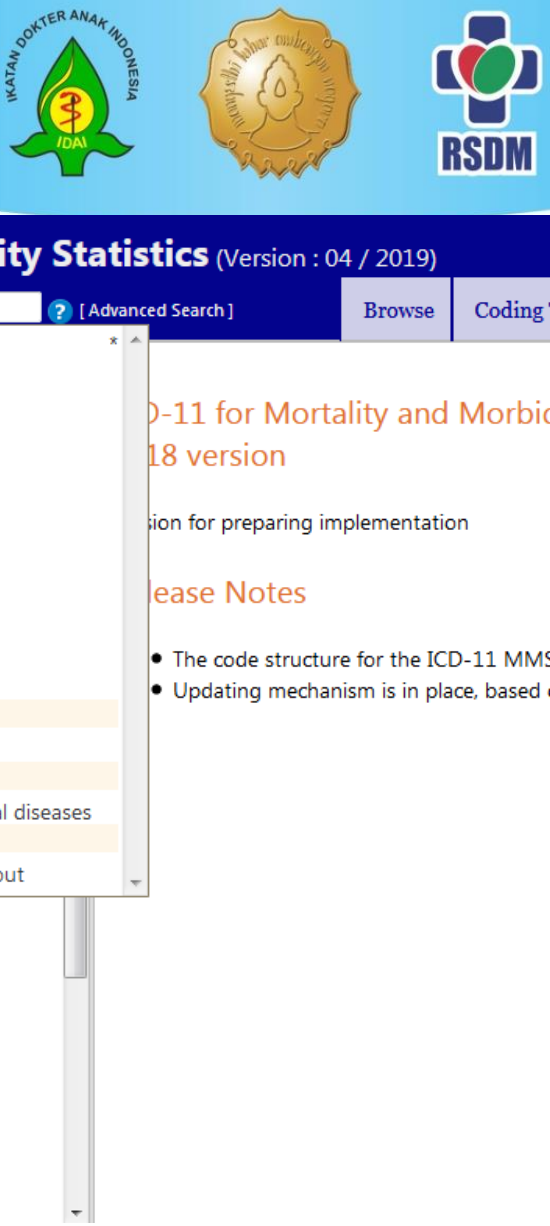
1. Patogenesis : Benarkah DD dan DBD merupakan satu kesatuan penyakit?
2. Kesulitan penggunaan klasifikasi WHO 1997
3. Perlu klasifikasi baru untuk memudahkan memperoleh kasus dengue dengan *warning signs* lebih banyak sehingga menurunkan angka kematian

4. Penggunaan pemeriksaan laboratorium dan pemeriksaan tourniquet
5. Deteksi dini dan tatalaksana pasien
6. Rekomendasi penggunaan klasifikasi penyakit/ *International Classification of Disease* 11 (ICD 11)

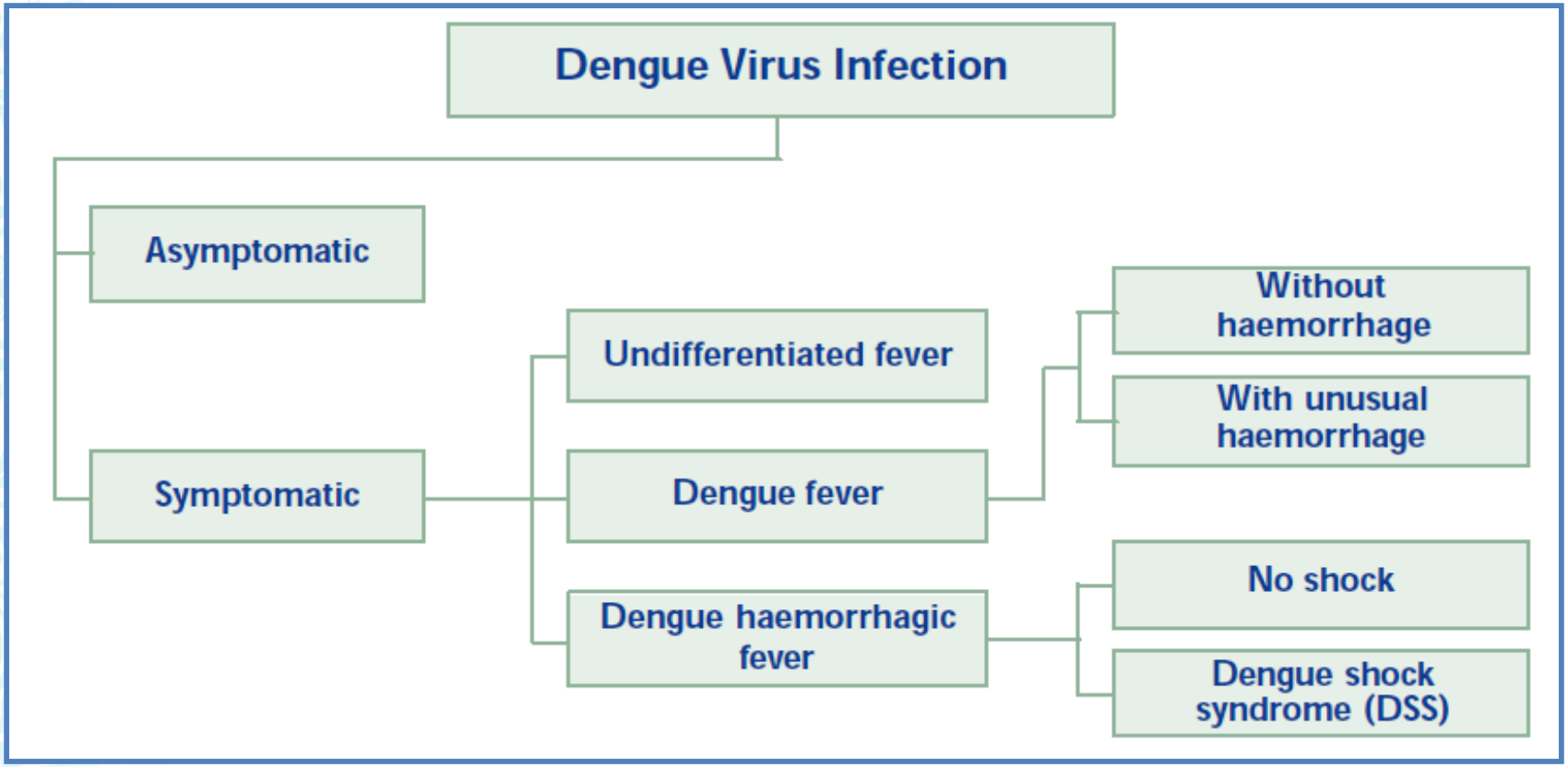
Klasifikasi dengue ICD 11 :

Dirilis pada 18 Juni 2019

- 1D20 : *Dengue without warning signs*
- 1D21 : *Dengue with warning signs*
- 1D22 : *Severe dengue*
- 1D2Z : *Dengue fever, unspecified*


ICD-11 for Mortality and Morbidity Statistics (Version : 04 / 2019)
Search dengue
[Advanced Search]
Browse
Coding Tool
Special Views
Info
Dengue
1D20 Dengue without warning signs
1D21 Dengue with warning signs
1D22 Severe dengue
1D2Z Dengue fever, unspecified
XN4CA Dengue virus
XN22Z Dengue virus 1
XN4RL Dengue virus 2
XN9XQ Dengue virus 3
XN2EQ Dengue virus 4
1C80 Viral encephalitis not elsewhere classified
Encephalitis due to Dengue fever
1D02.1 Viral myelitis
Myelitis due to Dengue virus
QA08.5 Special screening examination for other viral diseases
Screening for Dengue fever
QA02.1 Observation for suspected Dengue, ruled out
ICD-1
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
tissue
16 Diseases of the genitourinary system
17 Conditions related to sexual health
18 Pregnancy, childbirth or the puerperium
19 Certain conditions originating in the perinatal period
20 Developmental anomalies
21 Symptoms, signs or clinical findings, not elsewhere classified
22 Injury, poisoning or certain other consequences of
-11 for Mortality and Morbidity Statistics (ICD-11 MMS)
18 version
ion for preparing implementation
ease Notes
The code structure for the ICD-11 MMS is stable.
Updating mechanism is in place, based on the proposals submitted on the maintenance platform

WHO 1997



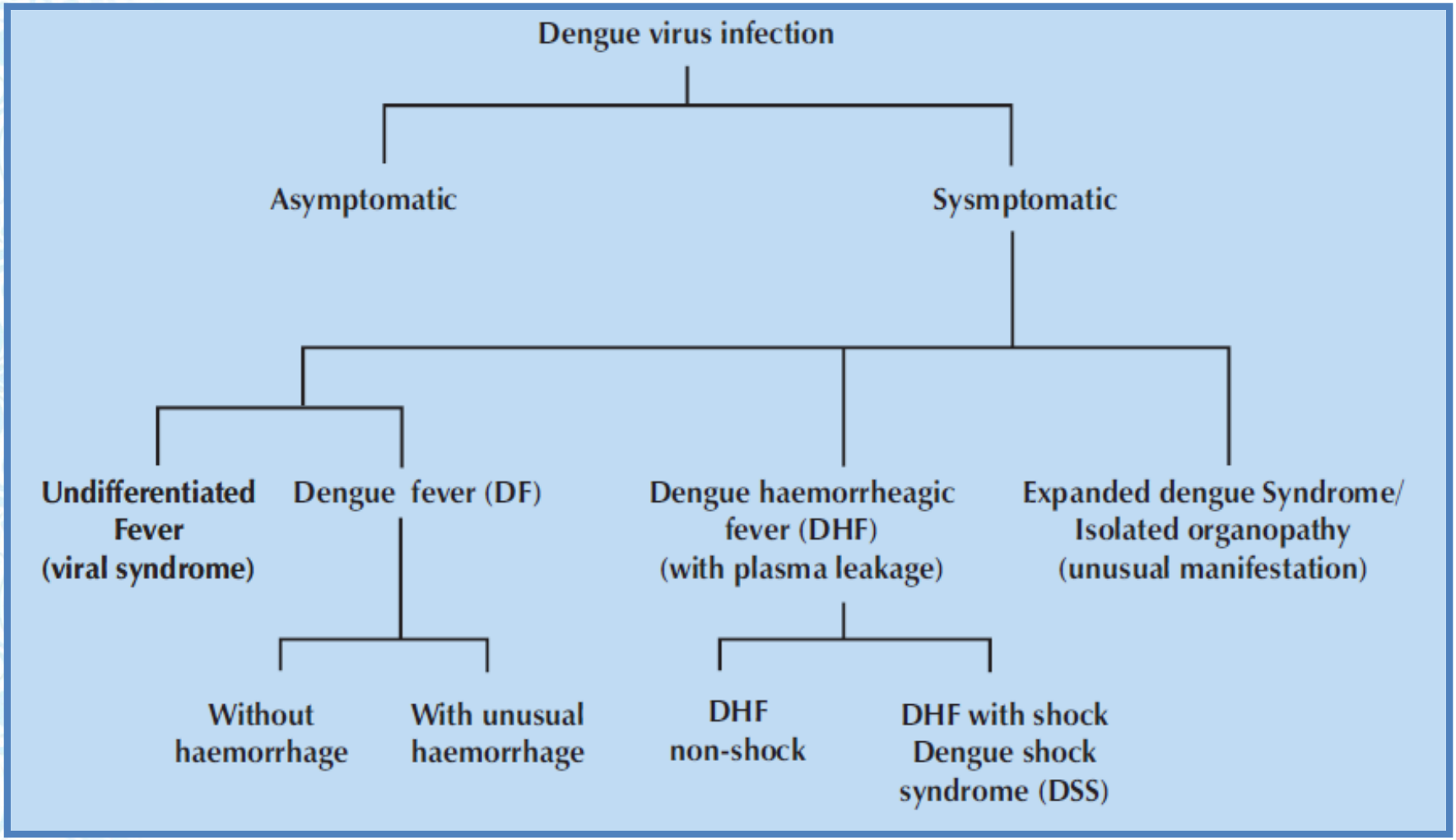
WHO 1997

Grade I	Fever accompanied by non-specific constitutional symptoms; the only haemorrhagic manifestation is a positive tourniquet test.
Grade II	Spontaneous bleeding in addition to the manifestations of Grade I patients, usually in the form of skin and/or other haemorrhages.
Grade III	Circulatory failure manifested by rapid and weak pulse, narrowing of pulse pressure (20 mmHg or less) or hypotension, with the presence of cold clammy skin and restlessness.
Grade IV	Profound shock with undetectable blood pressure and pulse.

Klasifikasi

WHO 1997

Klasifikasi Dengue WHO 2011

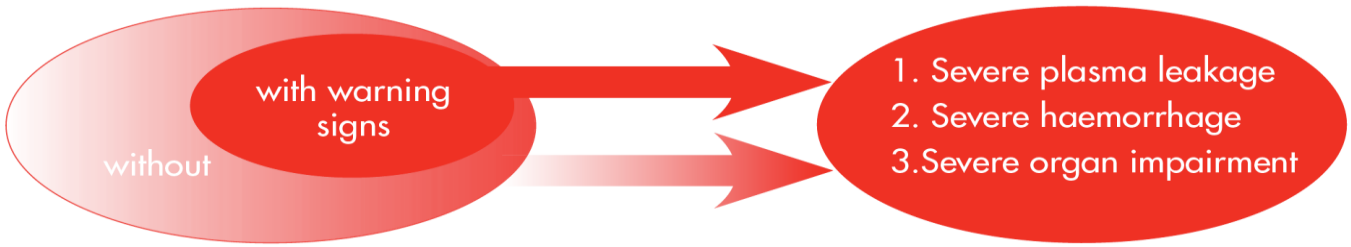


WHO 2011

Kelemahan klasifikasi WHO 1997

1. Klasifikasi DD/DBD/SSD gagal menggambarkan derajat beratnya penyakit
2. Banyak klinisi tidak dapat mengenali tanda kegawatan
3. Sulit diaplikasikan karena membutuhkan kriteria yang sangat ketat
4. Kurang membantu triage pada kondisi wabah
5. Mengakibatkan perbedaan laporan secara global karena sulitnya menentukan klasifikasi.

Klasifikasi WHO 2009



CRITERIA FOR DENGUE ± WARNING SIGNS

Probable dengue

live in /travel to dengue endemic area.
Fever and 2 of the following criteria:

- Nausea, vomiting
- Rash
- Aches and pains
- Tourniquet test positive
- Leukopenia
- Any warning sign

Laboratory-confirmed dengue

(important when no sign of plasma leakage)

Warning signs*

- Abdominal pain or tenderness
- Persistent vomiting
- Clinical fluid accumulation
- Mucosal bleed
- Lethargy, restlessness
- Liver enlargment >2 cm
- Laboratory: increase in HCT concurrent with rapid decrease in platelet count

*(requiring strict observation and medical intervention)

CRITERIA FOR SEVERE DENGUE

Severe plasma leakage

leading to:

- Shock (DSS)
- Fluid accumulation with respiratory distress

Severe bleeding

as evaluated by clinician

Severe organ involvement

- Liver: AST or ALT >=1000
- CNS: Impaired consciousness
- Heart and other organs

WHO 2009

Probable dengue

- WHO 1997 dan 2011 : DD dan DBD derajat 1 dan 2
- Tinggal di/ dari daerah endemis

- Terdapat demam disertai 2 kriteria :
  - Mual, muntah
  - Ruam
  - Nyeri
  - Uji tourniquet positif
  - Leukopenia
  - *Warning signs*

Warning Signs

- Nyeri abdomen
- Muntah persisten
- Akumulasi cairan
- Perdarahan mukosa
- Letargi
- Gelisah
- Pembesaran hepar
  > 2 cm

Laboratorium :

- Peningkatan hematokrit disertai penurunan masif kadar trombosit

Dengue ±warning signs: Laboratorium terkormirmasi dengue
Terutama bila tidak terdapat tanda akumulasi cairan

Dengue *without/with warning signs*

Pasien dengue *without warning signs* dapat dilakukan monitoring harian rawat jalan

Pasien dengue dengan *warning signs* di rawat inap, mendapatkan cairan intravena

Severe Dengue

1. *Severe plasma leakage*
2. *Severe haemorrhage*
3. *Severe organ impairment*

- Berisiko syok (DSS)
- Terjadi akumulasi cairan disertai distres respirasi

Severe Dengue

1. *Severe plasma leakage*
2. *Severe haemorrhage*
3. *Severe organ impairment*

- Hematemesis
- Melena
- Perdarahan lain yang mengancam kehidupan

Severe Dengue

1. *Severe plasma leakage*
2. *Severe haemorrhage*
3. *Severe organ impairment*

- Peningkatan AST/ALT ≥1000 IU/L
- CNS : gangguan kesadaran
- Gangguan hepar dan organ lain

Simpulan

- Klasifikasi WHO 2009 diharapkan nantinya lebih membantu klinisi dalam penegakan diagnosis secara dini, menjaring kasus dengue lebih banyak,dan lebih praktis dalam menentukan pasien dengan pemantauan

- Kita perlu bersiap-siap dengan adanya perubahan *International Classification of Disease* 11 (ICD-11) dan WHO 2009, sambil menunggu pengkajian lebih lanjut oleh UKK Infeksi dan Penyakit Tropis IDAI

Terima kasih