IPD Summary

Chikungunya Virus

NOTES AND DEFINITIONS:

Acronyms: CHIK = Chikungunya; CHIKV = Chikungunya virus

CHIK is caused by the chikungunya virus which is transmitted to humans by Aedes mosquitoes. CHIK is an acute febrile illness that is rarely fatal, although patients can experience debilitating symptoms that persist from months to years. (Nsoesie EO et al; "Global Distribution and Environmental Suitability for Chikungunya Virus, 1952 to 2015." Eurosurveillance; V.21; No.20; 05/2016; DOI:10.2807/1560-7917.ES.2016.21.20.30234)

CHIKV is a zoonotic virus endemic in Africa and Asia, where the mosquito vectors Aedes (Ae.) aegypti and Ae. albopictus are present. First described in Tanzania in 1952, CHIKV caused sporadic outbreaks over the next 50 years in these 2 continents. Since 2004, the re-emergence of CHIKV and the unprecedented global scale of the resulting epidemic has brought much attention to this previously neglected virus. This article focuses on important findings in epidemiology, clinical disease, and diagnostics reported in the recent literature and during the Chikungunya 2013 conference. (Sam I et al; "Updates on Chikungunya Epidemiology, Clinical Disease, and Diagnostics." Vector Borne and Zoonotic Diseases; V.15; No.4; 4/15; p223; DOI:10.1089/vbz.2014.1680)

Summary Tables

Jump to table
INCIDENCE (NEW CASES)
MORTALITY (NUMBER OF DEATHS)

INCIDENCE (NEW CASES)

Note: Numbers/rates reported by the original source appear in bold type.

Region/Country	Age Group (Years)	Incidence Rate (Per 100,000 Population)	Number of Cases	At-Risk Population
NORTH AMERICA				
[1] U.S.	unspecified	not reported	**26**	not reported
LATIN AMERICA				
[2] Colombia	unspecified	**19.1**	**106,592**	not reported
ASIA				
[3] India	unspecified	**158**	not reported	not reported
[4] India	unspecified	not reported	**1,300,000**	not reported
[5] Philippines	unspecified	see notes	**1,600**	see notes
[6] Thailand	unspecified	not reported	**50,000**	not reported
REGIONS				
[7] Africa	unspecified	not reported	not reported	**240,000,000**
[8] Americas	unspecified	not reported	not reported	**260,000,000**
[9] Asia	unspecified	not reported	not reported	**270,000,000**
[10] European Union	unspecified	**0.01**	not reported	not reported
[11] Worldwide	unspecified	not reported	not reported	**1,300,000,000**

**U.S. Census Bureau, 2015. Census figures represent the total population or a sub-set population, depending on the age group specified.*

Notes and Sources
[1] U.S.: Median annual number of CHIK cases reported during 2006-2009 (Gibney KB et al; "Chikungunya Fever in the United States: A Fifteen Year Review of Cases." Clinical Infectious Diseases; V.52; 3/11; pe121)
[2] Colombia: Median incidence rate and number of CHIK cases in 2014 (Cardona-Ospina J et al; "Estimating the Burden of Disease and the Economic Cost Attributable to Chikungunya, Colombia, 2014." Transactions of the Royal Society of Tropical Medicine and Hygiene; V.109; No.12; 12/15; p793)
[3] India: Annual peak incidence rate of CHIKV in 2006 (Sam I et al; "Updates on Chikungunya Epidemiology, Clinical Disease, and Diagnostics." Vector Borne and Zoonotic Diseases; V.15; No.4; 4/15; p223)
[4] India: Approximate number of CHIK cases reported in 2006 (Gibney KB et al; "Chikungunya Fever in the United States: A Fifteen Year Review of Cases." Clinical Infectious Diseases; V.52; 3/11; pe121)

[5] Philippines: Approximate number of CHIKV cases reported in 2013 (Sam I et al; "Updates on Chikungunya Epidemiology, Clinical Disease, and Diagnostics." Vector Borne and Zoonotic Diseases; V.15; No.4; 4/15; p223)
[6] Thailand: Approximate number of CHIKV cases in a southern Thailand epidemic in 2008-2009 (Sam I et al; "Updates on Chikungunya Epidemiology, Clinical Disease, and Diagnostics." Vector Borne and Zoonotic Diseases; V.15; No.4; 4/15; p223)
[7] Africa: Estimated number of people residing in areas at risk for CHIKV transmission (Nsoesie EO et al; "Global Distribution and Environmental Suitability for Chikungunya Virus, 1952 to 2015." Eurosurveillance; V.21; No.20; 05/2016)
[8] Americas: Estimated number of people living in areas at risk of CHIKV transmission (Nsoesie EO et al; "Global Distribution and Environmental Suitability for Chikungunya Virus, 1952 to 2015." Eurosurveillance; V.21; No.20; 05/2016)
[9] Asia: Estimated number of people residing in areas at risk for CHIKV transmission (Nsoesie EO et al; "Global Distribution and Environmental Suitability for Chikungunya Virus, 1952 to 2015." Eurosurveillance; V.21; No.20; 05/2016)
[10] European Union: Age-standardized incidence rate of CHIK fever in 22 countries in 2012 (ECDC Surveillance Report; "Annual Epidemiological Report: Emerging and Vector-Borne Diseases 2014." www.ecdc.europa.eu; 2/15; p1)
[11] Worldwide: Estimated number of people residing in areas at risk for CHIKV transmission (Nsoesie EO et al; "Global Distribution and Environmental Suitability for Chikungunya Virus, 1952 to 2015." Eurosurveillance; V.21; No.20; 05/2016)

MORTALITY (NUMBER OF DEATHS)

Note: Numbers/rates reported by the original source appear in bold type.

Region/Country	Number of Deaths
REGIONS	
[1] Americas	**32**

**U.S. Census Bureau, 2015. Census figures represent the total population or a sub-set population, depending on the age group specified.*

Notes and Sources
[1] Americas: Number of CHIK deaths as of 8 August 2014 (Dolan N; "Infectious Disease Surveillance Update." The Lancet; V.14; 9/14; p801)

Subgroups and Trends

International Incidence
International Prevalence
Diagnostic Issues
Race, Gender, Age
Transmission
Clinical Course
Maternal and Neonatal Complications
Genotypes and Mutations
Comorbid and Associated Conditions
Treatment and Health Service Utilization
Morbidity and Complications
Mortality
(back to topic links)

International Incidence

While dengue fever and yellow fever viruses have been re-emerging in many tropical areas since the 1980s, new epidemics have recently been caused by lesser known arboviruses: the Chikungunya virus (CHIKV) since 2005, and the Zika virus (ZIKV) since 2007. The Chikungunya and Zika viruses share common epidemiological features, such as transmission by the same vector, presence in the same environment, and observation by the same surveillance systems. With the aim to study the main factors that impact disease spread, a joint model of Chikungunya and Zika transmission was proposed that was based on the time-dependent susceptible-infectious-recovered (TSIR) framework. Data were obtained from 6 islands/small archipelagoes of French Polynesia and 3 islands of the French West Indies, where both diseases circulated for the first time and caused outbreaks between 2013 and 2016. Weekly incidence data were fitted with a common hierarchical transmission model. In French Polynesia, ZIKV outbreaks occurred between October, 2013 and March, 2014, followed a year later by CHIKV outbreaks (October, 2014 – March, 2015). Overall, there were about 30,000 observed clinical cases of Zika and 69,000 of Chikungunya, corresponding to an observed cumulated incidence of 11% and 26%, respectively. The dynamics of the outbreaks were similar in most of the 6 studied areas, with a steep increase after the first reported cases and a mean outbreak duration of 20 weeks. Except in the Austral islands, there were more reports of CHIKV cases than of ZIKV cases (2.1 to 4.5 times more).
In the French West Indies, CHIKV outbreaks occurred first (between December, 2013 and April, 2015) and ZIKV outbreaks started in January, 2016 and were still ongoing by August, 2016. Overall, there were 159,000 clinical cases of Chikungunya and 62,000 of Zika until July 28th, 2016. The CHIKV epidemic lasted from 47 to 73 weeks, with an observed cumulated incidence between 15% and 20%. (Riou J et al; "A comparative analysis of Chikungunya and Zika transmission." bioRxiv 078923; 2016)