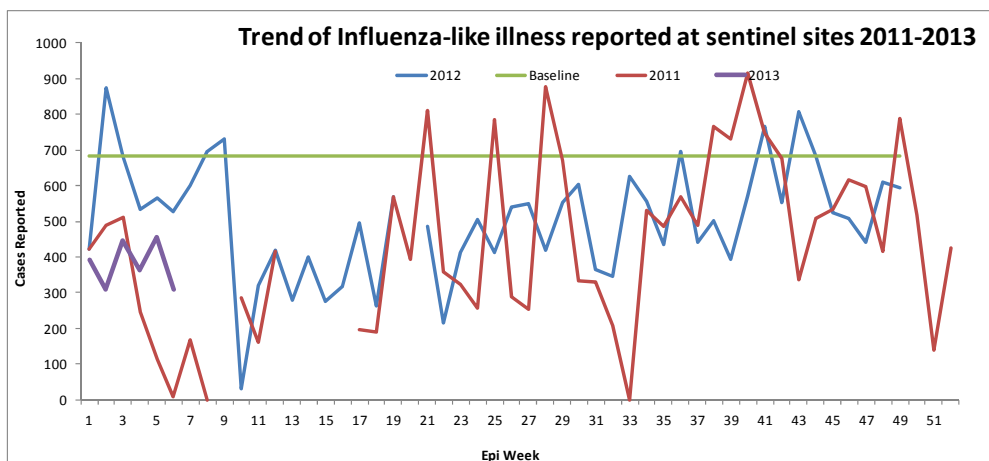


In this issue:

Fiji Early warning Syndromic surveillance	Pg.1
Fiji National Influenza Centre	Pg.2
Special feature : Chikungunya virus, an emerging threat to the Fiji Islands	Pg.3
Laboratory surveillance	Pg.4

Early warning syndromic surveillance

In January 2013, a total of 46 mobile text reports were received from the sentinel network (notification rate 96%) Influenza-like illness (Graph 1 below) : Active ILI is noted in the Macuata sub division, Northern division however ILI consultation rates are still below the threshold levels. The ILI consultation rate in week three was 46.6/100.000 persons, which is similar to the ILI consultation rate in 2012. From week 1 to week 3, 2013 three regions (Labasa, Levuka and Valelevu) reported sporadic ILI activity: No ILI samples have been received at the National Laboratory for testing.



Acute fever & rash :

Reported Acute fever & rash Jan.2013

Sentinel site	2012	2013
Fiji Police	0	0
Labasa	17	44
Lami		0
Lautoka	14	41
Levuka	1	1
Makoi	2	0
Nadi		0
Navua	0	1
Nuffield	0	1
Raiwaqa	0	
Rakiraki		0
Savusavu		
Sigatoka	1	0
Valelevu	0	0
Total	35	88

Prolonged fever cases are lower this period compared to last year. Highest number of cases were reported from Macuata and Nadroga/Navosa sub divisions. Majority of the Diarrheal cases during the month of January were recorded at the following sites: Valelevu, Navua, Sigatoka, Labasa and Navua.

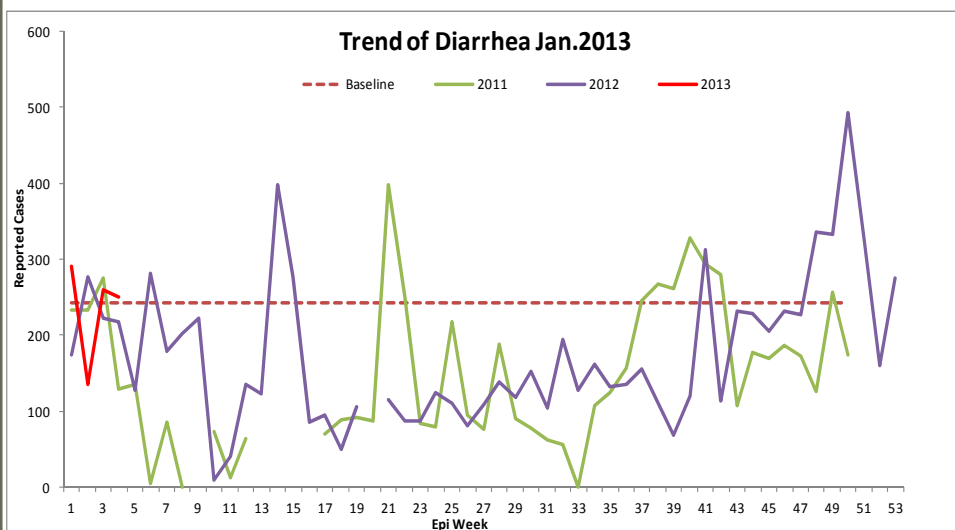
Case definitions

Acute fever & rash: sudden onset of fever with acute non blistering rash.

Diarrhea: 3 or more loose or watery stools in 24 hours

ILI-Sudden onset of fever with cough or sore throat

Prolonged fever: Any fever lasting 3 or more days



National Influenza surveillance

Table 2: Fiji National Influenza Centre (Fiji NIC)

Month	Number of samples received for testing		Number tested positive Influenza 2013		
	2012	2013	A	B	C
January	14	0	-	-	-
February	6				
March	12				
April	0				
May	3				
June	9				
July	16				
August	3				
September	3				
October	0				
November	0				
December	1				
Total	67				

Fiji NIC Laboratory Data :

No samples have been processed at the Fiji NIC laboratory due to renovations currently being conducted. *Reminder Case definitions on Influenza specific surveillance :*

Influenza-like illness (ILI): sudden onset of fever=> 38°C with cough and or sore throat in the absence of other diagnoses.

Influenza case: patient with ILI and laboratory confirmation of Influenza through virus isolation or antigen detection.

Fiji NIC participates in the global surveillance of Influenza and an update is provided below

Global Influenza Surveillance & Response (GISRN)

Summary: Influenza activity in North America remained high with some indications that activity might have peaked in areas. Some but not all indicators of severity in the United States of America and Canada have been slightly higher than in previous recent seasons. The onset of the season was earlier than usual and coincided with circulation of other respiratory viruses. Influenza A(H3N2) predominates in North America with A(H1N1)pdm09 being uncommon. • Many countries in Europe and temperate Asia are reporting increasing influenza activity with A(H1N1)pdm09 being relatively more prominent in Europe than in North America. • Some countries in the Eastern Mediterranean and the North Africa have reported declining detections of influenza positive samples. Influenza A(H1N1)pdm09 is predominant in the region. • In tropical Asia, the influenza activity is similar to previous weeks, with persistent low-level circulation. • Influenza activity in sub-Saharan Africa has declined in most countries. • In the Caribbean, central America and tropical south America, influenza activity decreased to low levels, except for Bolivia, where there is increasing circulation of influenza A(H3N2). • Influenza in countries of the southern hemisphere are currently at inter-seasonal levels

Influenza Transmission Zones : The Influenza Transmission Zones are geographical groups of countries, areas or territories with similar influenza transmission patterns. Beside right is a map showing the borders of the Influenza Transmission Zones as well as the list of countries, areas or territories by zone.



Latest information on human avian influenza A (H5N1) cases : Since 2003 to 17 January 2013, the number of cases reported from 15 countries worldwide is 610 and 360 were fatal (CFR 59%). Among the countries with more than 10 reported cases, Cambodia had the highest CFR of 90.5% (19 out of 21). Age distribution of the reported cases ranged from 3 months to 81 years old (median 19 years, n=587). The age group with the largest number of cases was 20-29 years of age (22.7%, 133/587), relative to other age groups (0-4; 5-9; 10-19; 30-39; 40-49; 50-59; 60-69; 70+ years). The highest CFR (73.8%) was among persons 10-19 years of age and lowest was among persons 70+ years old (25.0%). 54% of the cases were female (315/585); however, sex distributions vary by country and age group.

Vaccines: 20 September 2012: Recommended composition of influenza virus vaccines for use in the 2013 southern hemisphere influenza season It is recommended that trivalent vaccines for use in the 2013 influenza season (southern hemisphere winter) contain the following:

- an A/California/7/2009 (H1N1)pdm09-like virus *; an A/Victoria/361/2011 (H3N2)-like virus **; a B/Wisconsin/1/2010-like virus ***;

It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like virus ****. * A/Christchurch/16/2010 is an A/California/7/2009-like virus; ** A/Ohio/2/2012, A/Maryland/2/2012, A/South Australia/30/2012, A/Brisbane/1/2012 and A/Brisbane/6/2012 are A/Victoria/361/2011-like viruses; *** B/Hubei-Wujiangang/158/2009 and B/Texas/6/2011 are B/Wisconsin/1/2010-like viruses; **** B/Brisbane/33/2008 is a B/Brisbane/60/2008-like virus.

Chikungunya virus, an emerging threat to the Fiji Islands

Chikungunya was first isolated during a 1952 epidemic in Tanzania and the word *Chikungunya* in Swahili, means “that which bends up,” referring to the characteristic posture assumed by patients typically suffering severe joint pains. The virus belongs to the family *Togaviridae* and genera *Alpha viruses*. In the past 20 years, there has been an increasing global incidence and re-emergence to the Asian region after an absence of 20 years. It has also emerged in virgin populations or geographic regions in South East Asia, several islands of the Indian Ocean in 2005-07 and Europe in 2007.

In 2011, the first reported outbreak of Chikungunya occurred in the South Pacific on in New Caledonia. In 2012, the first reported case of Chikungunya infection was identified in PNG. The close proximity of these islands due to travel and social interactions increases the risk of emergence of Chikungunya to the rest of the Pacific island nations. **Figure 1 below:** Geographic distribution of CHIKV genotypes and movement of CHIKV outbreaks during 2004-2011.

Human CHIKV infection is usually symptomatic, with an acute onset of fever, followed by rash and arthralgia in the majority of cases. Attack rates often exceed 50% during an epidemic. The arthralgia is especially painful and debilitating, resulting in major losses in productivity in addition to direct morbidity; in one part of India, CHIKV infection was responsible for 69% of the total disability adjusted life years (DALY), a measure of debilitating disease burden.

The symptoms may persist for >1yr. The fatalities following CHIKV infection have been reported on La Re union Island as well as in India and Italy, including fatal neurologic disease. A review by Nature, estimates the mortality rate at 0.4%, but in patients under 1 year old it may be as high as 2.8% and similarly in those aged over 50 years the death rate may increase.

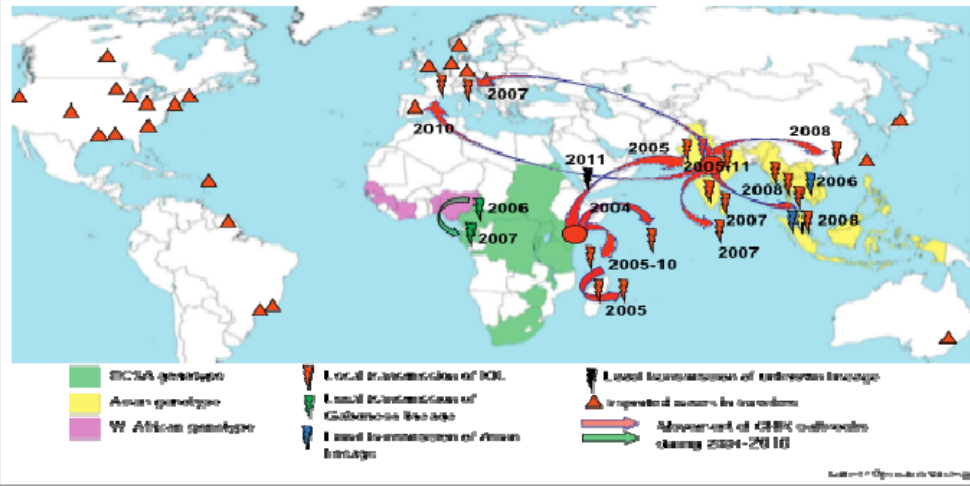
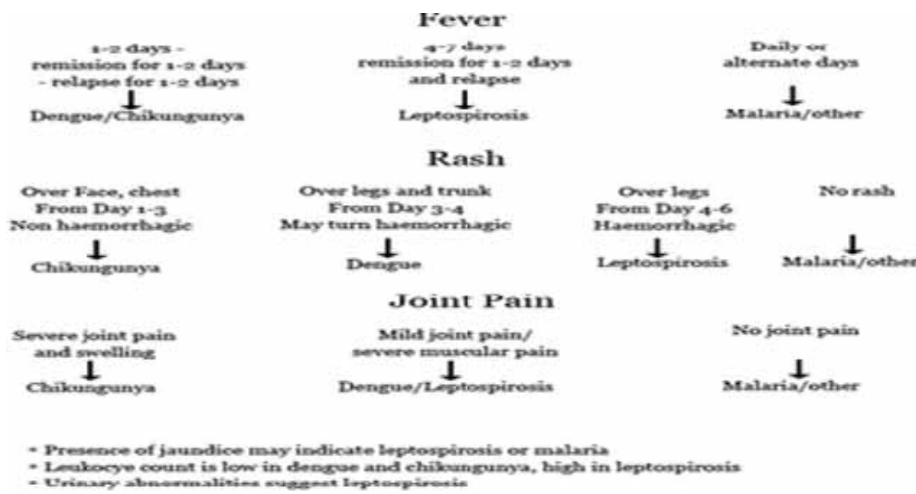


Figure 1 showing the geographic distribution of CHIKV genotypes and the movement of CHIKV outbreaks during 2004-2011. Triangles show symbols with CHIKV genotype (blue via internet) keyhole. On the basis of data [1,2,3,4,5,6], data from PubMed, ProMED-EM, and the Centers for Disease Control and Prevention [www.CDC.gov].

with patient loads while specialised hospital clinical encounter cases with difficult complications. This is a worst-case scenario that has been observed in outbreaks in La Reunion, Seychelles and island nations of the Indian Ocean.



A peculiar feature of the chikungunya virus has occurred in the last 10 years. In the 1950s, the virus was transmitted by the *Aedes aegypti* mosquito species but during the 2007 La Reunion outbreak, a mutation (E1 Ala226 Val) was discovered in the virus that enabled *Aedes albopictus* to be a more efficient and prolific vector for the chikungunya virus. The virus was able to replicate more rapidly in the *A. albopictus* mosquitoes mid-gut thereby increasing transmission to more human's hosts in a life cycle. This event contributed to massive and intense outbreaks around the world and has the potential to impact vulnerable Pacific island nations such as Fiji.

A. albopictus is a common mosquito species in Fiji's urban areas, which generally contains the largest proportion of the population. However, the ecology of *A. albopictus* is known to expand to include semi-urban and forested areas where eradication is impossible.

Detecting the virus in a developing country through existing surveillance systems will be a challenge initially, in the absence of appropriate laboratory diagnostic capacity and a reliance on disease notifications based on clinical features. Therefore the early warning system that includes the syndromic reporting sites need to be vigilant and intensify their active surveillance activities. Furthermore, there are no anti-CHIKV therapies or commercial vaccines available.

Treatment for CHIKF is symptomatic and this includes the use of corticosteroids, paracetamol and nonsteroidal anti-inflammatory drugs to alleviate the symptoms. Therefore the main strategy for control is vector control that will be more intense than that conducted for Dengue Fever due to the prolific nature of the virus and widespread distribution of the vector in the population.

Constant public awareness and education on elimination of potential mosquito breeding sites is key. Other advice are such that include personal protection from mosquito bites via fogging, wearing long-sleeve clothes, use of mosquito repellent and insecticide-treated mosquito nets to avoid exposure to infected mosquitoes are also important. Focal spraying maybe instituted however with limited value if surveillance information is uncoordinated and often gives the public a false sense of security towards arboviral infections.

Chikungunya is a serious vector borne disease caused by a virus that potentially has a devastating impact on the health and economy of Fiji. Activation of Public health emergency committees & IHR steps need to be implemented as soon as an alert is provided by the relevant agencies or when an epidemic is eminent with the first suspected cases. Public awareness on the disease needs to be intensive and repetitive, until some behavioral change has been observed. Vector surveillance coordinated with disease surveillance systems need to be strengthened.

Laboratory surveillance

Table 3: Confirmed cases from FCCDC & divisional laboratories January 2013

Selected diseases	Tests requested	2013		
	January	Cumulative tests requested	Current month positive	Cumulative positive cases
Measles ¹	4	4	0	0
Rubella ¹	4	4	1	
Dengue Fever ¹	226	226	73	73
Influenza ¹	0	0	0	0
Leptospirosis ¹	221	221	42	42
HIV/AIDS ¹	13	13	-	-
Typhoid fever ²	-	-	46	46
Cholera ²	-	-	0	0
Legend :				
- : Not available				
Data Source :				
1. 1 : FCCDC Laboratory (Mataika House)				
2. 2: Divisional Laboratories CWMH, Labasa & Lautoka				
3. HIV : Pending NACA approval for release of data				

A total of 399 test requests were received at the centre during the month of January. The highest number of requests (38%) came from the Central division. Dengue and Leptospirosis tests were the most common overall about 4-5 times more compared to the same period in 2012.

Results: **Typhoid** affected both females and males equally in Jan. By age group most cases were documented amongst the 10-19 & 20-29 yr age group across Fiji. 48% of all cases were reported from the Western division however there were clusters present in other health divisions. In January 2013 national rates of Typhoid was recorded at 2.26 per 100,000 persons. Most **Dengue** cases were reported from the Central division (37%) when it peaked in week 3 ($n=13$). The Northern division also noted an increase in the last week of January. Overall, Dengue affected both sexes equally. Similarly, for **Leptospirosis** 45% of all confirmed cases were from the Central division where numbers were highest towards the end of the month. The age group most affected for both are 10-19 & 20-29 yrs. More males were affected by Leptospirosis than females.

Acknowledgements to the various MoH departments in contribution of data towards this issue : HIU, Toomey Hospital, divisional laboratories, Mataika House Public health laboratory & WHO Suva office for continued technical support.

Any inquiries may be forwarded to Mataika House on telephone : 3320066. Fax: 3323267

Email contacts:

dawainavesia@wpro.who.int

