

Date of report: **08/08/2014 (Friday)** for cases presenting on: **08/06/2014 (Wednesday)**

THIS IS THE FINAL MASS GATHERING SURVEILLANCE SITREP

Summary

Key findings

- 6 (60%) sites reported for Wednesday 6th August. This represents 60% of all active sentinel surveillance sites since the end of the Games (10 sites)
- Of the 6 reporting sentinel sites, 2 (20%) reported syndrome cases.
- 23 (13%) of the total 178 encounters were reported as syndrome cases.
- 3 (37.5%) of the 8 syndromes were reported.
- 3 (37.5%) of the 8 syndromes reached their threshold:
 - 1 case AFR, female aged 20y. Resident of Pohnpei State
 - 3 cases Watery Diarrhea, all male, median 4y, range 3y to 67y. All residents of Pohnpei State.
 - 18 cases ILI, median age 28.5y, range 1y to 75y, 6 female and 12 male. All residents of Pohnpei State.
- No additional unusual occurrence reported from the sentinel sites.

Conclusion and recommendations

- AFR, Watery Diarrhea and ILI syndromes have reached their daily threshold. As games have finished response is on a case by case basis.
- While lower than yesterday watery diarrhea cases are still occurring and should be closely monitored over successive days. The 3 cases today come from the same POC (Pohnpei CHC).

Current outbreaks or public health incidents of importance to the games that are occurring in the region and globally

- There are currently measles outbreaks in Kosrae and Pohnpei States, FSM. Please refer to PacNet posting on 6th August 2014 for an update of the outbreak in Pohnpei. A rapid mass vaccination programme was implemented that covered 96% of the population under 49 years
- Additionally it is confirmed at least one Measles case in Chuuk State. Introduction from Pohnpei by a person visiting relatives – now returned. Investigation into the both the Pohnpei and Chuuk cases ongoing and Statewide non-selective vaccination programme to be introduced
- Guam - a laboratory confirmed case of measles has been detected in a 10-month-old child, who has been epidemiologically linked to visitors from Pohnpei, FSM. The case has no travel history.
- Nauru - dengue serotype-3 has been confirmed (RT-PCR) in 11 out of 26 samples sent to Institut Louis Malarde, French Polynesia. The dengue negative samples tested negative for zika virus and chikungunya. There were no new cases reported in Epi week 29.
- American Samoa – an outbreak of Chikungunya has been confirmed – so far more than 350 cases.
- An outbreak of Acute Fever and Rash is currently taking place in Samoa (76 cases reported on August 9). Chikungunya virus has been confirmed in 8 out of 20 samples sent to Institut Louis Malarde, French Polynesia.

Coverage: 11 points of care (POC) are included in the enhanced syndromic surveillance system. ***However please note:** One games-specific POC has closed following the end of the games. For the date indicated above, 6 POC (surveillance sentinel sites) submitted reports.

Overview analysis

| Number of cases observed for the date above | | | | | | | | | | |
|---|---|------------------------|--|-----------------|--|------------------------|--|--------------------|----------------------|-----------------------------|
| Point of care | Number Encounter cases* | Number Syndrome cases# | Acute fever and rash | Watery diarrhea | Non-watery diarrhea | Influenza-like illness | Prolonged fever | Fever and jaundice | Heat related illness | Food-borne disease syndrome |
| Berysin CHC | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report |
| COM Dispensary | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Genesis Hospital | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report |
| Lukop Dispensary | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Medpharm HC | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report |
| PICS High School | Not operating | Not operating | Not operating | Not operating | Not operating | Not operating | Not operating | Not operating | Not operating | Not operating |
| Pohnlangas Dispensary | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pohnpei CHC | 113 | 22 | 1 | 3 | 0 | 18 | 0 | 0 | 0 | 0 |
| Pohnpei State Hospital | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report | Did not report |
| Sokehs Dispensary | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wone Dispensary | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 178 | 23 | 1 | 3 | 1 | 18 | 0 | 0 | 0 | 0 |
| DAILY STATE THRESHOLD | N/a | N/a | 1 | 1 | 3 | 4 | 1 | 1 | 2 | 2 |
| Legend/key: | Red shading indicates an increase compared to the previous day's report | | Green shading indicates a decrease compared to the previous day's report | | Grey shading indicates POC closed on report or data collection day | | A cell shaded in white indicates no change compared to the previous day's report | | | |
| Interpretation: | Reports were collected from 6 sites for Wednesday 6 th . 6 (60%) of the post games 10 sentinel sites reported syndromes (originally 11 – one has now closed) AFR, Watery Diarrhea and ILI have reached their daily state-wide thresholds | | | | | | | | | |

*Encounter cases represent all acute care cases visiting a clinic regardless of whether they have one or more of the eight syndromes e.g., a sprained ankle would be included in the 'encounter case' count

#Syndrome cases represent all acute care cases visiting a clinic who have one or more of the eight syndromes e.g., a sprained ankle would NOT be included in the 'syndrome case' count

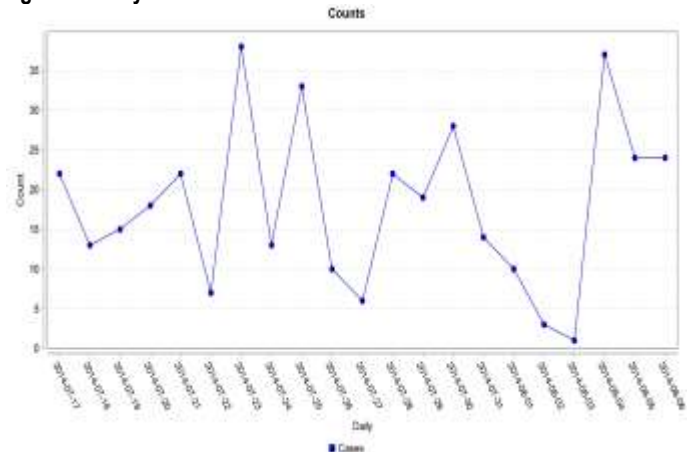
EpiCurves of the number of cases by visit date for Wednesday August 6th

Figure 1: All encounter cases

[No Epi-Curve available]

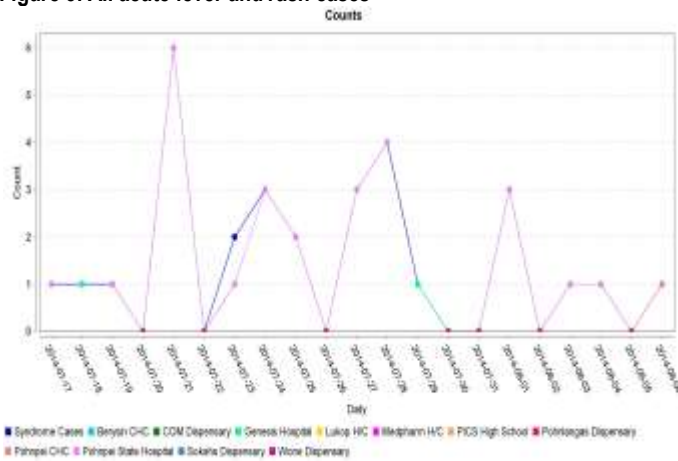
Final daily total 178 encounters

Figure 2: All syndrome cases



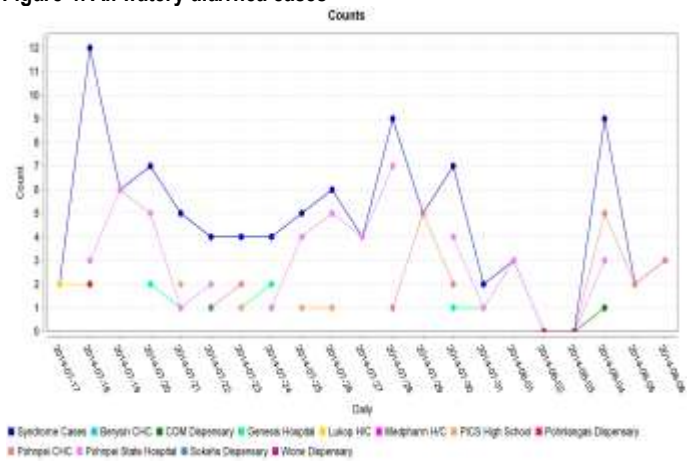
Interpretation: 6 of 10 sites reporting and of those 3 reporting syndromes. A decrease from 24 to 23 syndrome cases. Of which 22 at Pohnpei CHC.

Figure 3: All acute fever and rash cases



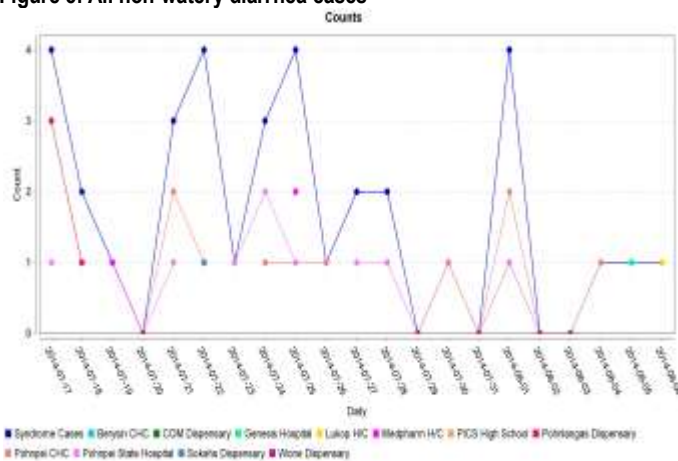
Interpretation: An increase of 1 case from 0.

Figure 4: All watery diarrhea cases



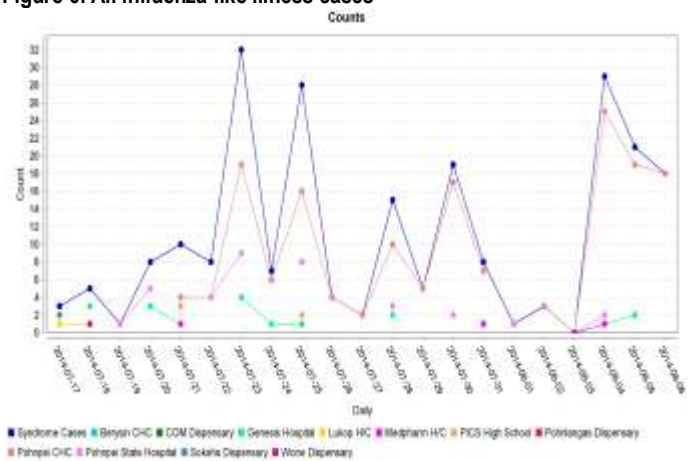
Interpretation: A slight increase from 2 to 3 cases.

Figure 5: All non-watery diarrhea cases



Interpretation: 1 case, the same level as the last 3 days

Figure 6: All influenza-like illness cases



Interpretation: A slight decrease from 24 to 18 cases, all from Pohnpei CHC. Case counts remain high

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| <p>Figure 7: All prolonged fever cases</p> <p>Interpretation: No increase from previous day, still zero cases.</p> | <p>Figure 8: All fever and jaundice cases</p> <p>[Only one case (25 July) since commencing Games]</p> <p>Interpretation:</p> |
| <p>Figure 9: All heat-related illness cases</p> <p>[Only two cases (July 23 and July 28) since commencing Games]</p> <p>Interpretation:</p> | <p>Figure 10: All food-borne disease outbreak cases</p> <p>[Zero cases since commencing Games]</p> <p>Interpretation:</p> |

Detailed analysis for ongoing investigations - for any syndrome where the set state daily threshold is reached (or was reached in previous days) and, following confirmation of cases, it was decided to undertake an investigation. This practice has been suspended post games and investigations are decided on a case by case basis

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| Syndrome | Acute fever and rash |
| Point of care (number of cases since July 22) | Pohnpei State Hospital (26 cases), Pohnpei CHC (1 case), Pohnlangas Dispensary (1 case), and Genesis Hospital (2 case) |
| Dates of investigation | July 23 – no tests ordered since end of games |
| Description of investigation undertaken | All cases of acute fever and rash reported from the Pohnpei State Hospital and Genesis Hospital on July 29 are still being further investigated by the public health team assigned to investigate measles. Throat swabs and serums are to be collected for further testing for measles. Specimens for measles testing will be sent to the Hawaii Public Health Laboratory for confirmation. Specimens from cases with possible vaccine reaction will be sent to CDC, Atlanta for further testing. Further testing for dengue fever, chikungunya and zika virus has been advised and specimen will be sent to Institut Louis Malardie, French Polynesia. |
| Findings of investigation: | |
| • Number of cases (since July 17) | 30 (1 case on August 6 th) |
| • Diagnostic methods, number of samples collected, number of samples tested, laboratory involved | 1 of 4 samples sent to Hawaii Public Health Laboratory on 29 th July tested Measles nucleic acid positive by RT-PCR, the other three samples were negative |
| • Prevailing epidemiological pattern: endemic or epidemic, recent epidemiological history | There are currently measles outbreaks in Kosrae, Pohnpei States and recently Chuuk, FSM. Please refer to PacNet posting on 6 th August 2014 for an update of the outbreak in Pohnpei state. There is a confirmed measles outbreak in the Solomon Islands. There are also outbreaks of dengue, zika, and chikungunya in the region. |
| • Time/Place/Person/clinical features | 1 case AFR, female aged 20y. Resident of Pohnpei State |
| Measures taken or considered: | |
| • Public health measures (e.g. immunisation strategy, patient and contact management, vector control, water and food safety) | Please refer to PacNet posting on 6 th August 2014 for an update of the Pohnpei situation. MMR vaccination campaign for outer islands will commence on 6 August 2014. |

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| Syndrome | Watery diarrhea |
| Point of care (number of cases since July 17) | Pohnpei State Hospital (49 cases), Genesis Hospital (10 cases), Pohnpei CHC (24 cases), PICS high school (5 cases), Lukop dispensary (4 cases), COM dispensary (2 cases), Pohnlangas Dispensary (3 case), Berysin CHC (1case), Sokehs dispensary (1 case) |

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| Dates of investigation | July 18 – no test ordered since end of games |
| Description of investigation undertaken | All watery diarrhea cases reported from Pohnpei State Hospital, Pohnpei CHC and Genesis Hospital are being further investigated by the public health response team. All stool specimens received at the Pohnpei State Hospital laboratory are being tested to rule out possible enteropathogens such as <i>Vibrio cholerae</i> , <i>Salmonella typhimurium</i> , and <i>Shigella dysenteriae</i> . Also, tests for <i>Giardia lamblia</i> and <i>Entamoeba histolytica</i> are performed. Furthermore, rapid testing for rotavirus, adenovirus, and norovirus is ongoing and results will be reported as they become available. |
| Findings of investigation: | |
| • Number of cases (since July 17) | 99 (3 cases on August 6 th) |
| • Diagnostic methods, number of samples collected, number of samples tested, laboratory involved | Stool samples taken on 28/7/14 showed <i>E.histolytica</i> cyst and trophozoites on microscopy. Stool samples taken on 29/7/14 showed <i>A.lumbricoides</i> ova, <i>E.histolytica</i> cyst and trophozoite. All stool samples tested since July 18 have reported negative for rotavirus, adenovirus and norovirus. |
| • Time/Place/Person/clinical features | 3 cases Watery Diarrhea, all male, median 4y, range 3y to 67y. All residents of Pohnpei State. |
| Measures taken or considered: | |
| • Public health measures (e.g. immunisation strategy, patient and contact management, vector control, water and food safety) | A public health advisory on diarrhea was created and translated into the local language for dissemination through radio. In addition, awareness on good hygiene techniques, including hand washing, is ongoing through posters and flyers. The ICS is working closely with EPA for further environmental assessment and remedial action in response to findings of the public health investigation team. |

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| Syndrome | Influenza like illness |
| Point of care (number of cases since July 17) | Pohnpei CHC (159 cases), Pohnpei State Hospital (35 cases), Genesis Hospital (18 cases), Pohnlangas dispensary (1 cases), Sokehs dispensary (2 cases), PICS High School (5 cases), Lukop dispensary (2 case), Medpharm HC (3 case), Berysin CHC (2 cases) |
| Dates of investigation | July 24 – no test ordered since end of games |
| Description of investigation undertaken | A line list of new cases of ILI is being collected from case investigation and will be presented in future reports. Further specimen collection is put on hold until pending results of specimens taken so far become available. |
| Findings of investigation: | |
| • Number of cases (since July 17) | 227 (18 cases on August 6 th) |
| • Diagnostic methods, number of samples collected, number of samples tested, laboratory involved | All specimens collected have been shipped to the reference laboratory at the Hawaii State Laboratory on Wednesday, July 30. Of 35 samples sent to Hawaii Public Health Laboratory, 34 returned negative for human influenza by RT-PCR. The one positive RT-PCR result was for influenza B |
| • Time/Place/Person/Clinical Features | 18 cases ILI, median age 28.5y, range 1y to 75y, 6 female and 12 male. All residents of Pohnpei State. |
| Measures taken or considered: | |
| • Public health measures (e.g. immunisation strategy, patient and contact management, vector control, water and food safety) | Awareness on good hygiene techniques, including hand washing and cough etiquette, is ongoing through posters and flyers. |

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| Syndrome | Prolonged Fever |
| Point of care (number of cases since July 17) | Pohnpei CHC (6 cases), Pohnpei State Hospital (6 cases), PICS High School (2 cases) |
| Dates of investigation | July 24 – no tests ordered since end of games |
| Description of investigation undertaken | Two cases of prolonged fever reported from the Pohnpei State Hospital had watery diarrhea syndrome as well and are being further investigated by the public health investigation team. A case report form to investigate dengue fever (and other arboviral infections) has been created for investigation of prolonged fever cases. |
| Findings of investigation: | |
| • Number of cases (since July 17) | 14 (no cases on August 5 th) |
| • Diagnostic methods, number of samples collected, number of samples tested, laboratory involved | 2 prolonged fever cases reported from Pohnpei CHC were treated for pneumonia-like illness. |

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| <ul style="list-style-type: none"> Time/Place/Person/Clinical features | 2 cases of prolonged fever aged 7y and 14y. All cases are females (100.0%). All are residents of Pohnpei State. |
| Measures taken or considered: <ul style="list-style-type: none"> Public health measures (e.g. immunisation strategy, patient and contact management, vector control, water and food safety) | A public health advisory on dengue fever and leptospirosis was created and made available through posters and flyers. Travel advisory and prevention messages for dengue fever and leptospirosis are displayed on a monitor at the port of entry at the Pohnpei International Airport. |

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| Syndrome | Non-watery diarrhea |
| Point of care (number of cases since July 17) | Pohnpei CHC (12 cases), Pohnpei State Hospital (9 cases), Lukop Dispensary (1 case), Pohnlangas dispensary (5 cases), Medpharm (4 cases), COM dispensary (2 cases), and Sokehs Dispensary (1 cases) |
| Dates of investigation | July 24 – no tests ordered since end of games |
| Description of investigation undertaken | Case investigation form for shigella and salmonella with food recall history are used to investigate non-watery diarrhea cases. |
| Findings of investigation: <ul style="list-style-type: none"> Number of cases (since July 17) Diagnostic methods, number of samples collected, number of samples tested, laboratory involved | 34 (1 case on August 5 th) The case reported on July 30 did not reach the threshold for further investigation. |
| Measures taken or considered: <ul style="list-style-type: none"> Public health measures (e.g. immunisation strategy, patient and contact management, vector control, water and food safety) | A public health advisory on diarrhea was created and translated into the local language for dissemination through radio. In addition, awareness on good hygiene techniques, including hand washing, is ongoing through posters and flyers. |

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| Syndrome | Fever and jaundice |
| Point of care (numbers of cases since July 17) | Pohnpei State Hospital (1 case) |
| Date of investigation | July 25 - no tests ordered since end of games |
| Description of investigation undertaken | Case investigation form adapted from the Pacific Outbreak Manual has been used for investigation of the 2 cases of acute fever and jaundice. Investigation by the public health response team has commenced today, July 30 and report will become available tomorrow, July 31. |
| Findings of investigation <ul style="list-style-type: none"> Number of cases (since July 17) Diagnostic methods, number of samples collected, number of samples tested, laboratory involved | 1 (no case on August 5 th) Rapid testing was undertaken and tested negative for both cases. Dry blood spot (DBS) is being sent to Institut Louis Malarde, French Polynesia for confirmatory testing for leptospirosis. A convalescent sample will also be taken for further testing. |
| Measures taken or considered <ul style="list-style-type: none"> Public health measures (e.g. Immunization strategy, patient and contact management, vector control, water and food safety) | A public health advisory on dengue fever and leptospirosis was created and made available through posters and flyers. Prevention messages and risk communication for arboviral infections and vector-borne diseases such as leptospirosis will be intensified. |

Note, the archive of daily reports can be found at: http://www.spc.int/phs/PPHSN/Surveillance/Mass_gathering.htm

Appendix 1 – Summary total encounters and syndromes by reporting sentinel site from 17th July to 6th August 2014

| Point of care | Number Encounter cases* | Number Syndrome cases# (% to encounters) | Acute fever and rash | Watery diarrhea | Non-watery diarrhea | Influenza-like illness | Prolonged fever | Fever and jaundice | Heat related illness | Food-borne disease syndrome |
|------------------------|-------------------------|--|----------------------|-----------------|---------------------|------------------------|-----------------|--------------------|----------------------|-----------------------------|
| Berysin CHC | 66 | 3 (5%) | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| COM Dispensary | 63 | 4 (6%) | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| Genesis Hospital | 1139 | 31 (3%) | 2 | 10 | 1 | 18 | 0 | 0 | 0 | 0 |
| Lukop Dispensary | 95 | 8 (8%) | 0 | 4 | 2 | 2 | 0 | 0 | 0 | 0 |
| Medpharm HC | 145 | 7 (5) | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 0 |
| PICS High School | 165 | 13 (8%) | 0 | 5 | 0 | 5 | 2 | 0 | 1 | 0 |
| Pohnlangas Dispensary | 512 | 10 (2%) | 1 | 3 | 5 | 1 | 0 | 0 | 0 | 0 |
| Pohnpei CHC | 1157 | 202 (18%) | 1 | 24 | 11 | 159 | 6 | 0 | 1 | 0 |
| Pohnpei State Hospital | 2040 | 126 (7%) | 26 | 49 | 9 | 35 | 6 | 1 | 0 | 0 |
| Sokehs Dispensary | 52 | 4 (8%) | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 |
| Wone Dispensary | 206 | 0 (0%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 5640 | 408 (7%) | 31 | 99 | 36 | 225 | 2 | 1 | 1 | 0 |

Interpretation:

Syndromes

ILI was the most prominently reported syndrome (255) accounting for around half (55%) of all syndrome cases

Watery diarrhea (24%) and non-watery diarrhea (9%) were the second and third highest reporting syndromes. AFR closely followed with 8 percent of syndrome cases.

Watery diarrhea (24%) and AFR (8%) accounted for almost a third (32%) of all reports and are indicative of more severe diseases requiring urgent attention. Prolonged fever accounted for 3 percent of cases.

1 POC reported no syndromes

Encounters

Daily encounters by week rose slowly before the games from 13th to 20th – see chart below and then climbed rapidly from the start of the games on 19th July to two days before the end of the games on 29th July, when the number of daily encounters slowed down – see chart below

The overall proportion of syndrome cases to encounters was 7 percent. Of those reporting syndromes the range was 3 percent to 18 percent. The typical syndrome to encounter proportion was 7 to 8 percent (4 of 7 POCs – 57%).

Pohnpei State hospital accounted for over a third (36%) of all encounters and almost a third (31%) of all syndromes. The proportion of syndromes to encounters was 6 percent

Pohnpei CHC accounted for the second greatest number of encounters (21%), some 15 percent lower than the State Hospital, but accounted for a half of all syndromes (50%) and with a far greater proportion of syndromes to encounters (18%)

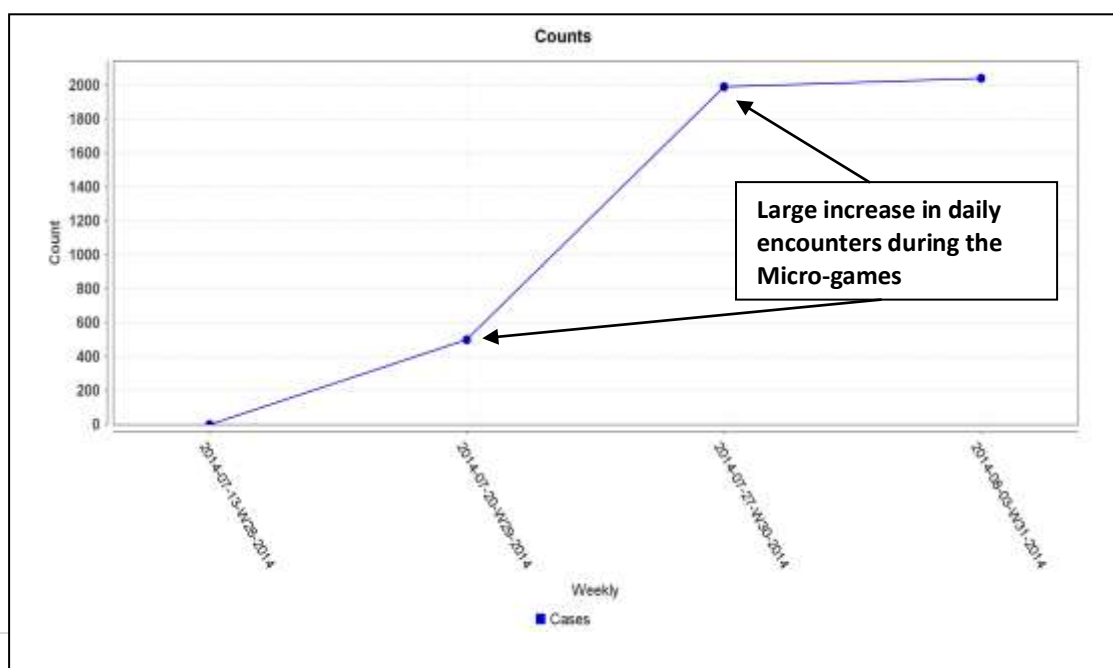
Genesis hospital accounted for the third greatest number of encounters (20%), but far lower number of syndrome cases (8%), and syndrome to encounter proportion of (3%)

These three centres accounted for three-quarters (77%) of all encounters but 88 percent of all syndrome cases. The distribution varied widely across these POCs from 18 percent at Pohnpei CHC to 7 percent at Pohnpei State Hospital and 3 percent at Genesis hospital

*Encounter cases represent all acute care cases visiting a clinic regardless of whether they have one or more of the eight syndromes e.g., a sprained ankle would be included in the 'encounter case' count

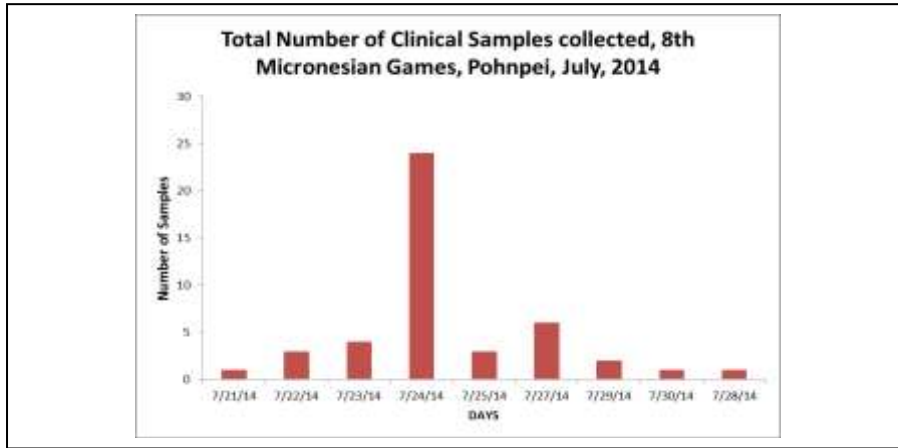
#Syndrome cases represent all acute care cases visiting a clinic who have one or more of the eight syndromes e.g., a sprained ankle would NOT be included in the 'syndrome case' count

Chart showing the pace of encounters by week, with a sharp increase in daily encounters occurring during the games from 19th to 29th July

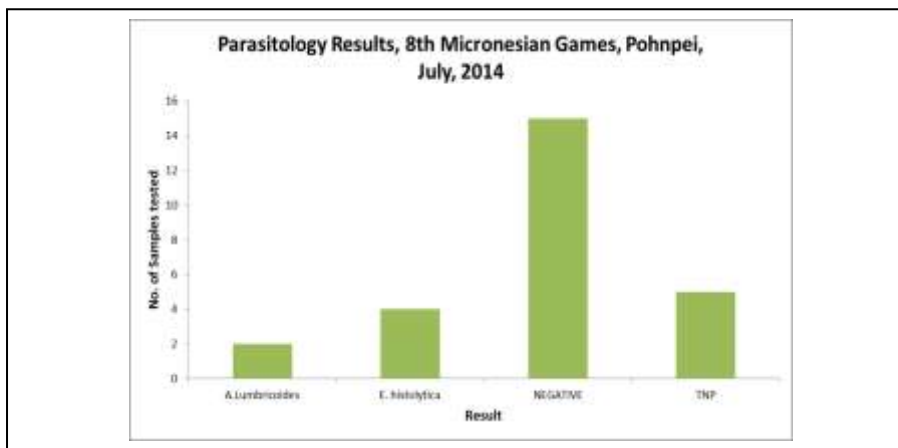
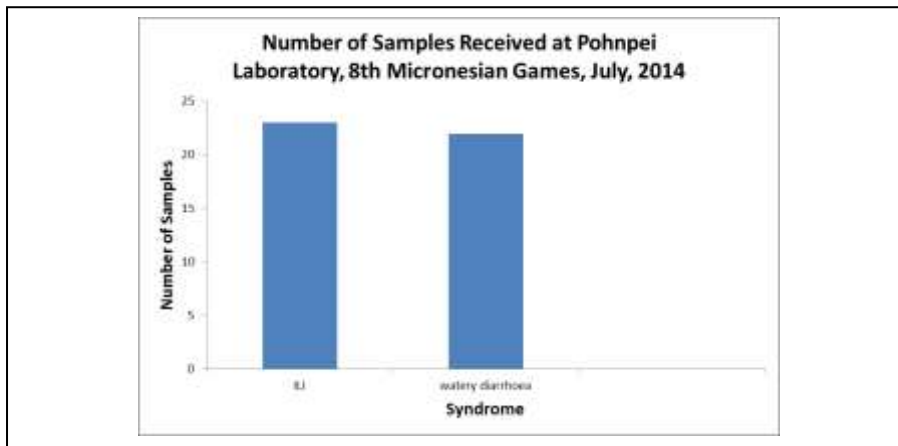


Appendix 2 – Charts illustrating Laboratory Activity to 30th July 2014

The games ran from 9th to 29th July



Peak sample collection occurred on 24th July 5 days before the end of the games, a second much smaller peak of sample collection occurred on 27th July two days before the end of the games.



This is the last SitRep of the mass-gathering sentinel syndromic surveillance for the 8th Micronesia Games held in Pohnpei State – Federated States of Micronesia. 17 daily SitReps have been completed.

The syndromic surveillance is the result of a huge amount of work undertaken by a joint collaboration between the Pohnpei State Public Health Department, Secretariat of the Pacific Community (SPC) and Johns Hopkins University. Many people have contributed to make the surveillance a success and a model for future mass-gathering events across the Pacific and elsewhere. A great deal of thanks is owed to the following for their leadership, support and contribution to the design, establishment, operation and reporting of the mass-gathering surveillance:

Pohnpei State Public Health Division

- Dr. E. Johnson - Chief of Public Health
- Eliashib Edward - National/Pohnpei Surveillance Coordinator
- Charles Loney - Surveillance Coordinator & Driver
- Sameer Gopalani – National Epidemiologist
- Lisa Barrow-Kohler – National Laboratory Supervisor

Secretariat of the Pacific Community

- Dr. Salanieta Saketa - Technical support and evaluation
- Dr. Damian Hoy - Epidemiologist (Surveillance Specialist)
- Dr. Tebuka Toata - Lab Specialist & Advisory and microbiology support
- Christelle Lepers - Surveillance information and communication support
- Alize Mercer – Technical support and JH system specialist
- Elise Benyon – Programme Administrator
- Dr. Paul White – Epidemiologist (Communicable Diseases and Surveillance)

Johns Hopkins University

- Sheri Lewis – Global Public Health Surveillance Project Manager
- Richard Wojcik – Technical development and support

Additionally and by no means lastly are all those who worked in the sentinel points of care and took up the challenge of daily recording of their encounters. They worked diligently and tirelessly as the essential foundations of the surveillance, and without whom, and their enthusiastic cooperation, there would have been no surveillance.

There are many others who also played key roles to ensure the surveillance operated smoothly and successfully – apologies if you have not been mentioned.