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Disease surveillance at the 10th Festival of Pacific Arts in American Samoa

Background

The 10th Festival of Pacific Arts was held in American Samoa from 20 July to 2 August 2008. American Samoa has a population of around 65,000 people spread over 200 km^2. We expected at least an extra 3000 visitors to our shores for the festival. This estimate did not include the annual influx of summer visitors attending various religious conferences and students returning from school. The added numbers of people due to the festival therefore provided quite a big surveillance task for us.

Reports from the 9th Festival of Arts, held in Palau in 2004, provided much needed guidance in dealing with a large gathering involving densely populated accommodation areas and mass preparation and storage of food. We recognised that the occasion presented opportunities for the introduction and spread of infectious diseases. An important aspect of planning was to also include vector-borne and other largely preventable diseases in the framework for prevention.

All festival activities during the day were held at Utulei Village in the town area. The location was chosen not only because of the beautiful beach, where a performing stage was built for dance groups, but also because American Samoa's only hospital (LBJ Hospital) is just a few minutes away by car. Other possible locations would have meant that transportation to the hospital could take anywhere from the normal 20–25 minutes to 1 hour depending on extra festival traffic.

Housing for festival delegations from all the Pacific Islands was set up on the western side of the island using high schools and our largest church compound. Dignitaries and national leaders were accommodated at the Tradewinds Hotel. Tourists attending the festival either stayed in hotels or were billeted with families who had signed up during the planning phase.

A primary care facility was set up at a community health centre (Tafuna Family Health Centre) not far from all the housing venues to serve all visitors. It was open 24/7 and was staffed with a doctor until midnight and then with nurses from LBJ Hospital and Public Health, who volunteered their services to cover the night shift. An emergency medical service (EMS) crew was on standby for emergencies or referrals to the main hospital. The provision of medical care close to the housing venues was designed to alleviate congestion at the main hospital and to take care of less serious problems such as flu symptoms and minor aches and pains.

In addition, medical services were available at two tents erected at the festival sites at Utulei Village and at Veterans Memorial Stadium, where evening performances were held.

Surveillance for this event was carried out by a surveillance nurse (the author) and our territorial epidemiologist, based on daily collection of surveillance forms from the various sites, including from sites housing visiting island delegations, some of which had their own medical personnel. As surveillance is a relatively new division within our public health system, I found it frustrating not to have access to more staff to assist with surveillance activities. However, I did have the cooperation of LBJ Hospital staff, who also collected surveillance data, and the medical teams that accompanied a few of the visiting delegations (see details below).

Strategy and method

The Public Health Department decided to operate under the incident command system (ICS) structure, a system set up by firefighters in the United States as a means of communication and organisation for emergency situations or events beyond normal capacity. In accordance with ICS guidelines, a unified health command was set up which included health personnel from our hospital and outlying village health centres, and from EMS units providing ambulance transport and assistance in all medical matters.

In the few months leading up to the festival, key players from our local Public Health Department attended weekly meetings with various government departments and agencies involved in festival planning. From a public health point of view, emphasis was on disease surveillance and preventing sanitation-related health problems. Our main aim was to keep our hospital free to treat our regular patients and for emergencies.

Our surveillance plan was as follows. As the surveillance nurse, I made daily visits to all medical sites set up at the various festival locations to pick up surveillance triage forms from patients seen the previous day. These forms were used to create daily reports for our unified command meetings with the various health agencies involved. Each form provided demographic information on the patient and the reason for their visit or consultation. There was also a section (entitled "Disposition") giving details on the discharge of the patient and where the patient was discharged to, which helped us keep track of hospital admissions (see ASDOH Morbidity Report Form for Active Surveillance in Clinical Care Settings).

Support from visiting delegations

A few of the country delegations brought their own medical teams and medications and this helped alleviate any congestion at medical facilities. These medical personnel also took part in our surveillance and assisted by completing triage forms .Their support of our efforts was very much appreciated and contributed greatly to our reporting.

Results

We accomplished our main goal. Only 9.2% of the festival participants who received medical services were treated at the hospital during the two weeks of the festival, while the remainder used the specially designated medical facilities. At Utulei Village during the day and at Veterans Stadium at night, the medical tents were well used, not only by festival participants but by visitors and local people, with very few referrals to the main hospital.

At the closing meeting of our unified health command, records showed that a total of 306 festival participants received medical services from the opening of the festival on 17 July. Of this number, 12% (n=36) sought care for respiratory illnesses, 19% (57) for headaches and 16% (48) for symptoms of gastroenteritis. Musculoskeletal pain was reported by 11% (33) of presenting patients (see morbidity report).

Gastroenteritis cases

We were working closely with medical personnel from one of the island nations when it was noticed that a number of performers were seeking medical attention for gastroenteritis-like symptoms, namely diarrhea and vomiting. We were informed by the medical doctor with the delegation that the affected people seemed to have eaten the same food. After consultation with the epidemiologist and the attending doctor, it was decided to closely monitor the affected participants in the housing area. The attending physician was comfortable with the administration of treatment and my follow-up the next day found that all performers had

recovered. It was noted, though, that they had all bought the same sandwiches from a roadside vendor. However, conducting an investigation was difficult as there were a number of unlicensed vendors selling from the roadside. The limited staffing of our environmental and sanitation divisions meant it was nearly impossible to keep track of all unlicensed vendors.

Dengue fever epidemic

Though we saw sporadic cases of dengue fever during the festival, it was not until afterwards that the number of dengue cases seen at the hospital started to increase. September was the peak month with over 180 confirmed cases being seen at the hospital. So far, the territory has had one death linked with this epidemic.

Lessons learned

The syndromic surveillance system used for this event could be improved by using an electronic medical record system. This would have allowed for immediate disease reporting, thus eliminating the need for additional staff time to complete the forms.

In addition, staff shortages, inconsistencies in recording, and misclassification of illness and injury also contributed to many cases not being properly recorded. This became evident after the festival when discussion at our last unified health command meeting showed that many cases associated with the festival were not recorded, especially of locals seeking treatment for minor afflictions such as headache or coughing. The original plan had been to record only participants from island delegations who sought care, but during my first day of picking up surveillance forms, I found that staff had also filled out forms for local people. To keep everybody on the same track, it was decided to complete a form for anyone who sought care. The rotation of staff at the tents every day was another problem, as explanations on filling out the surveillance form were given by various people with different interpretations of what should be recorded. Thus a lot of minor cases were missed. It was also noted that the sole medical attendant for one of the delegations was difficult to track down because of her performers' schedules.

Conclusion

The establishment of a special disease surveillance procedure for the 10th Festival of Pacific Arts was valuable experience for American Samoa as this was the first time our disease surveillance system had been put to the test. It was important to execute the surveillance plan well to avoid potential health impacts on our already overburdened medical infrastructure.

Acknowledgements

I would like to acknowledge members of our Health Incident Command Centre, which included physicians, nurses, and the Chief Executive Officer of LBJ Medical Centre (or Hospital), the Public Health Emergency Preparedness Division Staff of Public Health, Staff at the Tafuna Family Health Centre, the Epi Team, and our epidemiologist (who was on board at that time) Joseph Roth (CIFO).

Sharmain Mageo, RN
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ASDOH Morbidity Report Form
For Active Surveillance in Clinical Care Settings

Complete one form per patient. Use category or categories that best describe the reason the patient is seeking care.

Part I VISIT INFORMATION

1. LOCATION & NAME OF FACILITY: A S (2-letter STATE) ○ LBJ ○ TFHC ○ Stadium ○ Utulei (NAME OF FACILITY / STATION)
2. DATE OF VISIT: MM DD YYYY
3. TIME OF VISIT: : (12-hour Clock) AM PM

Part II PATIENT INFORMATION

4. HOSPITAL NUMBER OR FESTIVAL ID NUMBER:
5. AGE (YEARS): 0 =<1 YEAR; 99+ = 99
6. NATION OF ORIGIN: ○ American Samoa ○ Australia ○ CNMI ○ Cook Islands ○ Fiji ○ FSM ○ GUAM ○ Hawaii ○ Kiribati ○ Marshall Islands ○ Nauru ○ New Caledonia ○ New Zealand ○ Niue ○ Norfolk Island ○ Palau ○ Papua New Guinea ○ Pitcairn Islands ○ Rapa Nui ○ Samoa ○ Solomon ○ Tahiti ○ Tokelau ○ Tonga ○ Tuvalu ○ Vanuatu ○ Wallis & Futuna ○ Other
7. SEX: ○ **Male** ○ **Female**
8. *If* ***Female***, PREGNANT? ○ Yes ○ No ○ Unknown

Part III REASON FOR VISIT Please check **all** categories related to patient's **current** reason for seeking care.

CAUSE OF INJURY

- ○ **Bite / sting**, *specify:* ○ animal ○ insect ○ snake ○ human
- ○ **Burn**, *specify:* ○ chemical ○ fire, hot object or substance ○ sun exposure
- ○ **Cut**, *specify:* ○ debris ○ machinery (e.g. chainsaw)
- ○ **Drowning / submersion**
- ○ **Electrocution**
- ○ **Fall**, *specify:* ○ from height ○ same level
- ○ **Foreign body** (e.g., in eye, splinter)
- ○ **Hit by object**
- ○ **Poisoning**, *specify:* ○ CO exposure ○ inhalation of other fumes, dust, or gas ○ ingestion
- ○ **Vehicle Collision** *specify:* ○ Driver/occupant, *specify:* ○ motorized ○ non-motorized ○ Pedestrian
- ○ **Violence / assault**, *specify:* ○ sexual assault ○ suicide / self-inflicted injury

ROUTINE/FOLLOW-UP CARE

- ○ **Medication Refill**
- ○ **Re-check**
- ○ **Vaccination**

ACUTE ILLNESS / SYMPTOMS

- ○ **Abdominal pain**
- ○ **Cardiac emergency** (e.g.pain, arrest)
- ○ **Cold-related** (e.g., hypothermia)
- ○ **Conjunctivitis / eye irritation**
- ○ **Dehydration**
- ○ **Dizziness**
- ○ **Fever** (i.e., >100.4°F or 38°C)
- ○ **Gastrointestinal**, *specify:* ○ nausea / vomiting ○ bloody diarrhea ○ watery diarrhea ○ non-specific diarrhea
- ○ **Headache or migraine**
- ○ **Heat-related**
- ○ **Jaundice**
- ○ **Meningitis / encephalitis, suspected**
- ○ **Musclo-skeletal pain** (including joint, back)
- ○ **Neurological** (e.g., altered mental status or confused / disoriented, syncope, stroke)
- ○ **Oral / Dental pain**
- ○ **Respiratory**, *specify:* ○ cough, *specify:* ○ dry ○ productive ○ with blood ○ wheezing in chest ○ pneumonia, suspected ○ shortness of breath, difficulty breathing
- ○ **Skin / soft tissue**, *specify:* ○ rash ○ infection ○ infestation (e.g. lice, scabies) ○ sore throat
- ○ **Urinary pain** (e.g. UTI)

EXACERBATION OF CHRONIC DISEASE

- ○ **Cardiovascular**, *specify:* ○ hypertension ○ congestive heart failure
- ○ **Diabetes**
- ○ **Immunocompromised**
- ○ **Respiratory**, *specify:* ○ asthma ○ COPD
- ○ **Seizure**

MENTAL HEALTH

- ○ **Affective symptoms** (e.g. overly anxious or depressed)
- ○ **Drug/alcohol intoxication or withdrawal**
- ○ **Psychological evaluation**
- ○ **Suicidal thoughts or attempt**
- ○ **Violent behavior / threatening violence**

OBSTRETRICS / GYNECOLOGY

- ○ **Complication of pregnancy** (e.g., premature, bleeding, abdominal pain, fluid leakage)
- ○ **GYN condition** not associated with pregnancy or post-partum period
- ○ **In labor** with/without complications
- ○ **Routine pregnancy check-up**

OTHER

- ○ **Other** (Illness/injury/condition not fitting into one of the above categories), *specify:*

Part IV WORKER / VOLUNTEER STATUS INFORMATION

9. Did condition occur as a result of work (paid or volunteer) involving disaster response or restoration efforts? ○ Yes ○ No ○ Unknown
10. OCCUPATION / RESPONSE ROLE:
12. ACTIVITY AT TIME OF INJURY / ILLNESS:

Part V DISPOSITION

- ○ Discharge to self-care ○ Died
- ○ Admit / refer to hospital ○ Unknown
- ○ Refer to other care (e.g., clinic, physician, center)
- ○ Left before examination completed

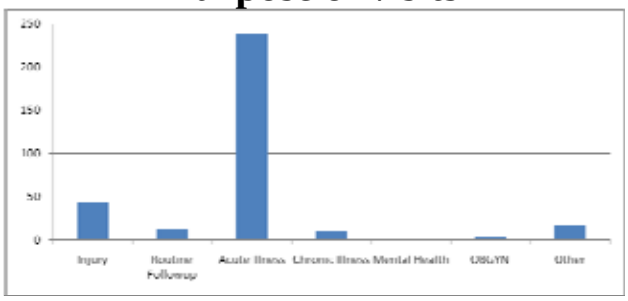
Morbidity Report 08-06-2008

American Samoa Department of Health

10th Festival of Pacific Arts

About This Report: Daily active surveillance at AS medical sites and among medical delegations continues until further notice. This report summarizes patient visit data collected between 7-17-08 and 08-05-08.

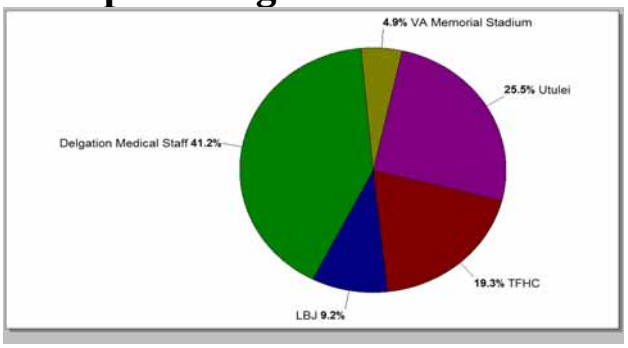
Purpose of visits



Patient overview

Total festival participants who have received medical services in AS since 7-17-08: 306
Sex: 45% Female; 55% Male
Average Age: 36 (Range 2-80)

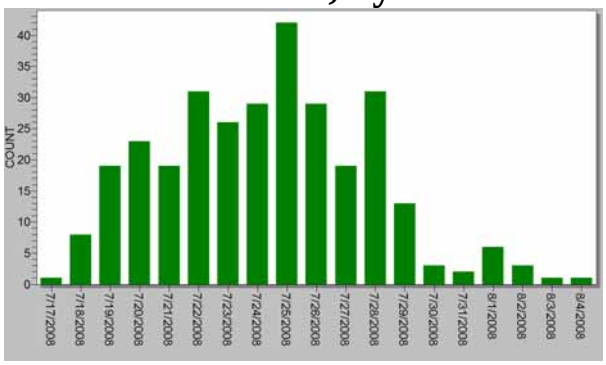
Sites providing medical services



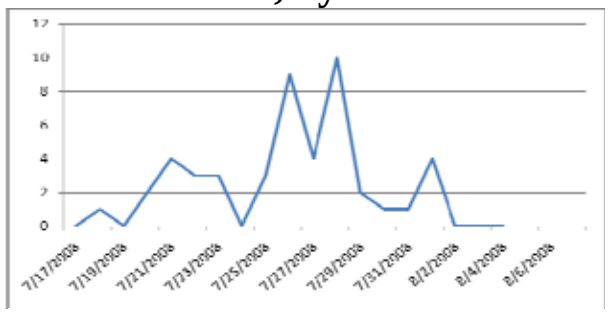
Acute illness profile

From 7-17-08 to 8-5-08, 12% (n=36) of festival participants seeking medical care described symptoms of respiratory illness. During the same period, 19% (57) were treated for headaches and 16% (n=48) reported symptoms of gastroenteritis. Musculoskeletal pain was reported by 11% (n=33) of presenting patients.

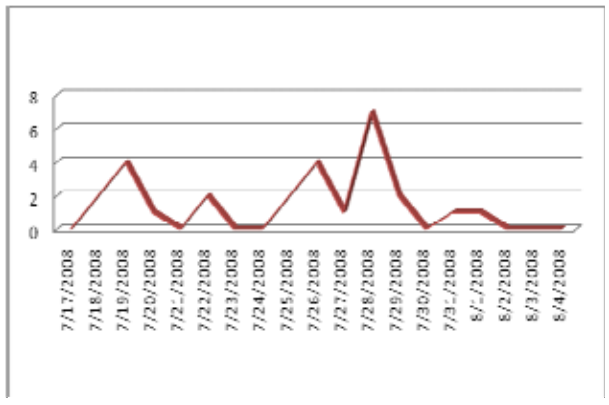
Clinic visits, by Date



Gastrointestinal illness visits, by date



Patients presenting with fever, by date



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