

# EPIDEMIOLOGIC INVESTIGATION SUMMARY

## NOROVIRUS: GASTROINTESTINAL ILLNESS OUTBREAK AMONG INMATES AND STAFF OF A PRISON IN CLARK COUNTY, NEVADA, 2014

*Department of Health and Human Services  
Division of Public and Behavioral Health  
Office of Public Health Informatics and Epidemiology*

**September 2014  
Edition 1.0  
2014 volume, issue 20**

### PURPOSE

The purpose of this newsletter is to provide the scientific community, decision makers, healthcare providers, and the public a summary of the outbreak investigations conducted by the Division of Public and Behavioral Health.

### BACKGROUND

On May 14, 2014, the Division of Public and Behavioral Health (DPBH), Office of Public Health Informatics and Epidemiology (OPHIE) was informed by the infection control coordinator of a prison (Facility "A") of a gastrointestinal (GI) illness outbreak among inmates of Facility "A". Those ill were first identified by staff of the facility on May 4, 2014, and initial symptomology of the ill included diarrhea and vomiting. The outbreak investigation began on May 14, 2014.

### METHODS

#### Epidemiology

On May 14, 2014, DPBH provided recommendations to reduce and prevent the spread of illness in Facility "A", including the submission of outbreak case report forms to OPHIE daily until further notice, exclusion of symptomatic employees from the facility until 72 hours after symptoms resolved, and laboratory testing to identify the pathological agent(s).

A **confirmed case** was defined as an inmate, staff member, or visitor of Facility "A" who was lab confirmed with norovirus since May 4, 2014.

A **probable case** was defined as an inmate, staff member, or visitor of Facility "A" who was not lab confirmed with norovirus but had diarrhea and/or vomiting (along with possible other GI illnesses) since May 4, 2014.

A **suspect case** was defined as an inmate, staff member, or visitor of Facility "A" who was not lab confirmed with norovirus but anecdotally had diarrhea and/or vomiting (along with possible other GI illnesses) since May 4, 2014.

Some of the earliest staff cases were linked to a group gathering that occurred outside Facility "A". The group of staff cases ate at a food establishment in Clark County before becoming ill which may explain how the illness entered Facility "A". During this outbreak, Clark County, Nevada was experiencing a community wide diarrheal illness outbreak attributed to norovirus. Starting in March 2014, Clark County had experienced increases in reports of norovirus: gastrointestinal illness. It is believed that the norovirus outbreak at Facility "A" is linked to this increase in Clark County and the various norovirus outbreaks that occur throughout the county.

Facility "A" did not initially report ill staff due to the misunderstanding of the Health Insurance Portability and Accountability Act (HIPAA); Facility "A" administration thought by reporting staff illnesses they were breaching patient confidentiality. OPHIE sent Facility "A" information stating that OPHIE is an excluded entity, especially during an outbreak, and requires patient information to protect the health of the public. This became an issue as it became difficult to track accurate case numbers throughout the

outbreak. Another issue affecting reporting was miscommunication between the custody and medical sections within Facility “A”. This issue specifically affected the reporting of staff cases from the custody section to the medical section; medical was the point of contact for the outbreak investigation team.

High level administrative intervention was needed to make sure outbreak procedures were followed correctly. Administration from DPBH and the Department of Correction (DOC) worked together to make sure staff of Facility “A” were following recommendations given by OPHIE and case reporting of all ill was occurring daily.

## **Site Visit**

A site visit was conducted at Facility “A” on June 30, 2014 due to the large number of cases and the outbreak lasting longer than expected. The site visit was conducted by two OPHIE Outbreak Response Team members and the facility’s infection control coordinator. Areas observed during the site visit included the infirmary, prisoner intake, culinary (kitchen), and a cell-block unit.

## **Laboratory**

Laboratory testing for GI illness was highly recommended for ill residents and staff in order to identify the etiologic agent, target infection prevention measures, and control the outbreak within Facility “A”. Laboratory testing was focused on identifying norovirus and stool samples were taken.

Fourteen laboratory tests were conducted and the specimens collected were stool samples.

## **Mitigation**

In order to prevent further spread of illness, the OPHIE Outbreak Response Team disseminated recommendations for the prevention and control of norovirus gastroenteritis outbreaks.

Additionally, Facility “A” followed its own prevention measures. Any inmates brought in with symptoms were held in the infirmary until 72 hours after symptoms ceased. Due to the limited space in the infirmary during the outbreak, inmates were kept in their cells until 72 hours after

symptoms had ceased. Single-use food trays and disposable eating utensils were also used. Inmate work and visitation were discontinued during the outbreak.

# **RESULTS**

## **Epidemiology**

A total of 99 cases (87 probable and 12 confirmed) were reported. Illness onset occurred between May 4, and June 17, 2014. The epidemic curve is presented in Figure 1 and shows the distribution of illness onset dates.

Included in the probable case count were two inmates who became ill at Facility “A” and then were transferred to Facility “B”, another prison in Nevada. After the inmate transfer, there were no subsequent illnesses reported from Facility “B”.

The outbreak was not localized to one area of Facility “A” but affected multiple units. This indicates that the illness was spread throughout Facility “A” through contact between ill and non-ill individuals.

Among the 99 cases, the average age was 39 years old (range 20-70 years) and males contributed 90.9% of cases. Symptomatic cases reported diarrhea (90.9%), nausea (70.7%), vomiting (68.7%), abdominal pain (49.5%), body aches (11.1%), fever (4.0%), and headache (1.0%). The average duration of illness was three days (range 1 – 9 days). The inmate attack rate was 2.3%, the staff attack rate was 2.8%, and the overall attack rate was 2.4%.

After HIPAA guidelines were clarified with Facility “A”, there remained a lack of understanding by Facility “A” administration as to how the law applied in this investigation. This resulted in lack of reporting ill staff and affected data collection and statistics regarding the outbreak. Even though, the statistics reported in this document are actual reported numbers, they are likely significantly under-reported.

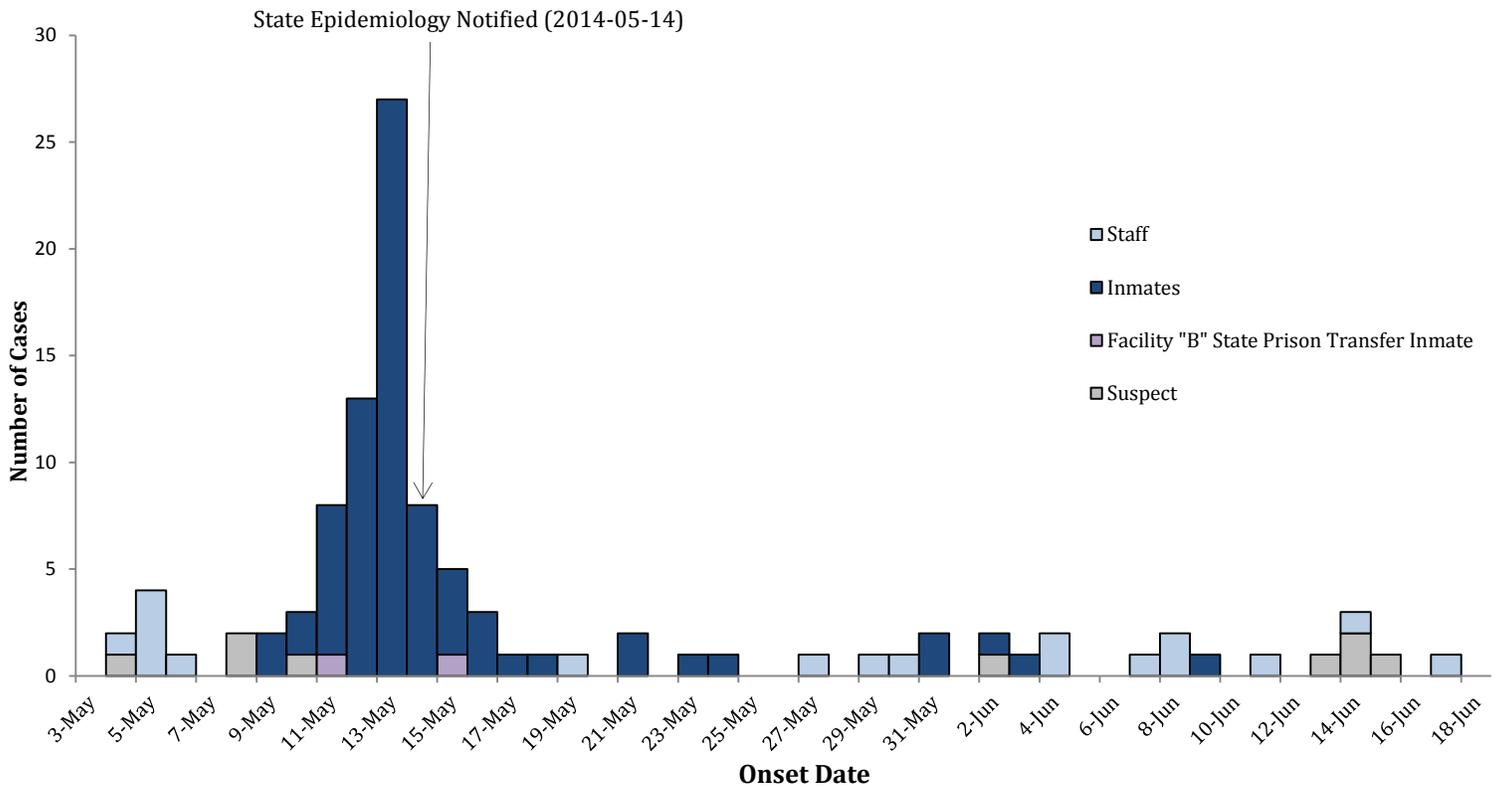


Figure 1. The epidemic curve of a norovirus outbreak (n=99) associated with a prison in Clark County, Nevada from May 4-June 17, 2014

This also resulted in the outbreak including 9 suspect cases, which were not counted in the final case counts or epidemiology, as there was not enough information available to determine if they were a cases or not. The large number of suspect cases was due to a lack of information on symptoms and case name.

### Site Visit

During the site visit conducted on June 30, 2014, several violations were observed: dirty containers in the walk-in cooler, improper glove use by workers, several dented can goods – one can bulging significantly at the seal, improper storage of cups, and one food cooler that exceeded the safe temperature zone of 41°F. The site visit team provided the facility with recommendations to improve upon these violations and prevent future illness within the facility.

### Laboratory

Of 14 specimens tested, 12 tested positive for norovirus genogroup II (GII).

The last lab confirmed case was on May 24, indicating a continued transmission of norovirus, even after the peak of illness on May 14. The last lab confirmation indicates that the cases from May 21 onward are not normal background illness, but rather that the outbreak was continuing, and under-reported

### Mitigation

After the cause of the outbreak was determined to be norovirus, DPBH reiterated to the facility the same information given at the start of the outbreak for preventing and controlling norovirus gastroenteritis outbreaks along with guidance for fixing issues found during the site visit.

## CONCLUSIONS

A GI illness outbreak occurred among inmates and staff at Facility “A”, a prison in Clark County, Nevada, from May 4, through June 17, 2014. Confirmatory test results indicated norovirus was the causative agent and the mode of transmission was believed to be person-to-person.

In total, 99 persons were classified as cases; 79 inmates and 20 staff. Symptoms included diarrhea, nausea, vomiting, abdominal pain, body aches, fever, and headache with illness

duration lasting an average of 3 days. Staff of the facility had the highest attack rate at 2.8%. The epidemiologic link between cases was believed to be the facility in which the inmates were held and the staff worked.

The outbreak ceased as of June 18, 2014.

## RECOMMENDATIONS

To prevent such norovirus outbreaks in any institutional setting, the following public health measures are recommended:

- Follow hand-hygiene guidelines and carefully wash hands under running water with soap for at least 20 seconds; especially after contact with ill.
- Exclusion and isolation of infected individuals should be practiced until 72 hours after their symptoms have ceased.
- Refrain from moving the ill to unaffected areas of the institution/facility.
- Exclusion of ill staff and food handlers should be practiced until 72 hours after their symptoms have ceased.
- Routinely clean and disinfect high touch patient surfaces and equipment with an Environmental Protection Agency-approved product with a label claim for norovirus.

## REFERENCES

1. Centers for Disease Control and Prevention. *Updated Norovirus Outbreak Management and Disease Prevention Guidelines*. MMWR 2011; 60(3): [2-20]. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6003a1.htm>

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## **RECOMMENDED CITATION**

Division of Public and Behavioral Health. Office of Public Health Informatics and Epidemiology. Epidemiological Investigation Summary, *Norovirus: Gastrointestinal Illness Outbreak among Inmates and Staff of a Prison in Clark County, Nevada, 2014*. v 2014. i 20. e 1.0. September 2014.

## **ACKNOWLEDGEMENTS**

Thank you to all persons who contributed to this publication:

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This report was produced by the Office of Public Health Informatics and Epidemiology of the Division of Public and Behavioral Health with funding from budget account 3219.