EPIDEMIOLOGIC INVESTIGATION SUMMARY

CLOSTRIDIUM DIFFICILE: GASTROINTESTINAL ILLNESS OUTBREAK AMONG RESIDENTS OF AN ASSISTED LIVING FACILITY CLARK COUNTY, NEVADA, 2014

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

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PURPOSE

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

BACKGROUND

On December 18, 2014, the Division of Public and Behavioral Health (DPBH), Office of Public Health Informatics and Epidemiology (OPHIE) was informed by the infection preventionist of a gastrointestinal (GI) illness among residents of Facility "A." The problem was first identified by staff of the facility on Friday, December 12, 2014. Initial symptomology of the ill residents included diarrhea and abdominal cramps. The outbreak investigation began on Thursday, December 18, 2014.

METHODS

Epidemiology

On Thursday, December 18, 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 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). Based on the case report forms received from Facility "A," and while still awaiting laboratory confirmation, the outbreak investigation team made an initial determination that the causative agent could possibly be *Clostridium difficile* (aka: *C. diff.*). This initial determination was based off of prior experience with this pathogen, as well as the CDC's description of the symptomology for *C. diff.*[1]

A **confirmed case** was defined as a resident, staff member, or visitor of Facility "A" who was lab confirmed with *C. diff.* since Friday, December 12, 2014.

A **probable case** was defined as a resident, staff member, or visitor of Facility "A" who was not lab confirmed with *C. diff.* but had diarrhea and/or vomiting (along with other possible GI illnesses) since Friday, December 12, 2014.

A **suspect case** was defined as a resident, staff member, or visitor of Facility "A" who was not lab confirmed with *C. diff.* but anecdotally had diarrhea and/or vomiting (along with other possible GI illnesses) since Friday, December 12, 2014.

Laboratory

Laboratory testing for GI illness was highly recommended for ill residents in order to identify the etiologic agent, target infection prevention measures and control the outbreak within Facility "A." Laboratory testing was focused on the presence of *C. diff*.

Three laboratory specimens were collected and tested during this outbreak.

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 to Facility "A."

To further prevent the spread of illness, Facility "A" conducted its own prevention measures including educating staff on *C. diff.* prevention, proper hand hygiene, importance of cleaning high touch surfaces, and proper PPE use. Facility "A" also implemented the use of Sani-Cloth bleach wipes for cleaning which is effective against *C. diff.* spores and are recommended by the CDC.

RESULTS

Epidemiology

A total of five cases (three confirmed and two probable) were reported. The epidemic curve is presented in Figure 1 and shows the distribution of illness onset dates.

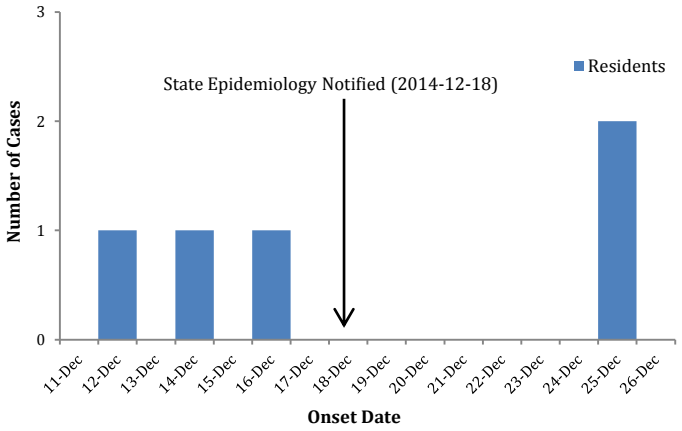

Figure 1. The epidemic curve of C. diff (n=5) associated with an Assisted Living Facility in Clark County, Nevada from December 12 – 25, 2014

The peak illness onset dates were December 25, 2014. Among the cases, the average age was 85 years old (range 71-98 years) and males comprised 40 % of cases. Symptomatic cases reported diarrhea (100%) and abdominal pain (20%).

The average duration of illness could not be calculated because information on illness duration was not reported. The resident attack rate was 12.2%.

Laboratory

All three laboratory specimens tested positive for *C. diff.*

Mitigation

After lab results confirmed that the cause of the outbreak was *C. diff.*, which has an incubation period of two - three days[2], the DPBH reiterated to the facility the same information given at the start of the outbreak for preventing and controlling *C. diff.* outbreaks. The facility continued their own mitigation efforts as well.

CONCLUSIONS

A GI illness outbreak occurred among patients at Facility "A," a long term care facility in Clark County, Nevada from Friday, December 12 through Thursday, December 25, 2014. Confirmatory test results indicated *C. diff.* was the causative agent and the mode of transmission was believed to be person-to-person.

In total, five residents were classified as cases (three confirmed and two probable). Symptoms included diarrhea and abdominal pain. Illness duration could not be calculated because information on illness duration was not reported. Residents attack rate was 12.2% and none of the residents were hospitalized. The epidemiologic link between cases was believed to be the facility in which the residents lived.

The outbreak was declared over by Friday, December 26, 2014 because the facility went two full incubation periods without a new case.

RECOMMENDATIONS

To prevent *C. diff.* outbreaks in healthcare settings, the following public health measures are recommended:

- Use contact precautions for the duration of patient diarrhea
- Abide by proper use of gloves
- Follow proper hand hygiene that is in compliance with CDC/WHO guidelines
- Clean and disinfect equipment and environment; the use of a bleach solution is most effective
- Educate health care workers, housekeepers, administration staff, patients, and families on *C. diff.*
- Isolate patients with symptoms until a *C. diff.* confirmation is made

- Immediately notify infection control about positive *C. diff.* laboratory results[3]

REFERENCES

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