

Norovirus Gastroenteritis



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WARNING

An inservice about
Norovirus is an
inservice about vomit
and feces!

Norovirus (NV) History

- Bronson Elementary, **Norwalk**, Ohio 1968
- Called “*Winter Vomiting Disease*” or “stomach flu”, associated w Cruise ships
- Most common cause of stomach upset in the USA
- Most often in closed/semi-closed communities where infection spreads rapidly b/o contact w persons, surfaces or objects

Norovirus Disease

- Causes gastroenteritis-inflammation of the stomach and small and large intestines
- People can feel very ill and vomit, often violently w/o warning many x per day
- Sickness begins 1-2 days after exposure*
 - Nausea is usually the first symptom
- Sickness lasts 1-3 days (D can persist)
- **It is possible to be infected w/o SxS
 - This person will be contagious!!!

Norovirus Stability

- NV is stable!
- To kill NV 1/10 bleach/water is insufficient. Needs to be >1/10.
- Survives freezing – ice is a frequent vehicle
 - Thrives in cool temps > salads
- Survives heating to 140F. Cooking kills NV but not warm holding temps and post cooked food can become contaminated

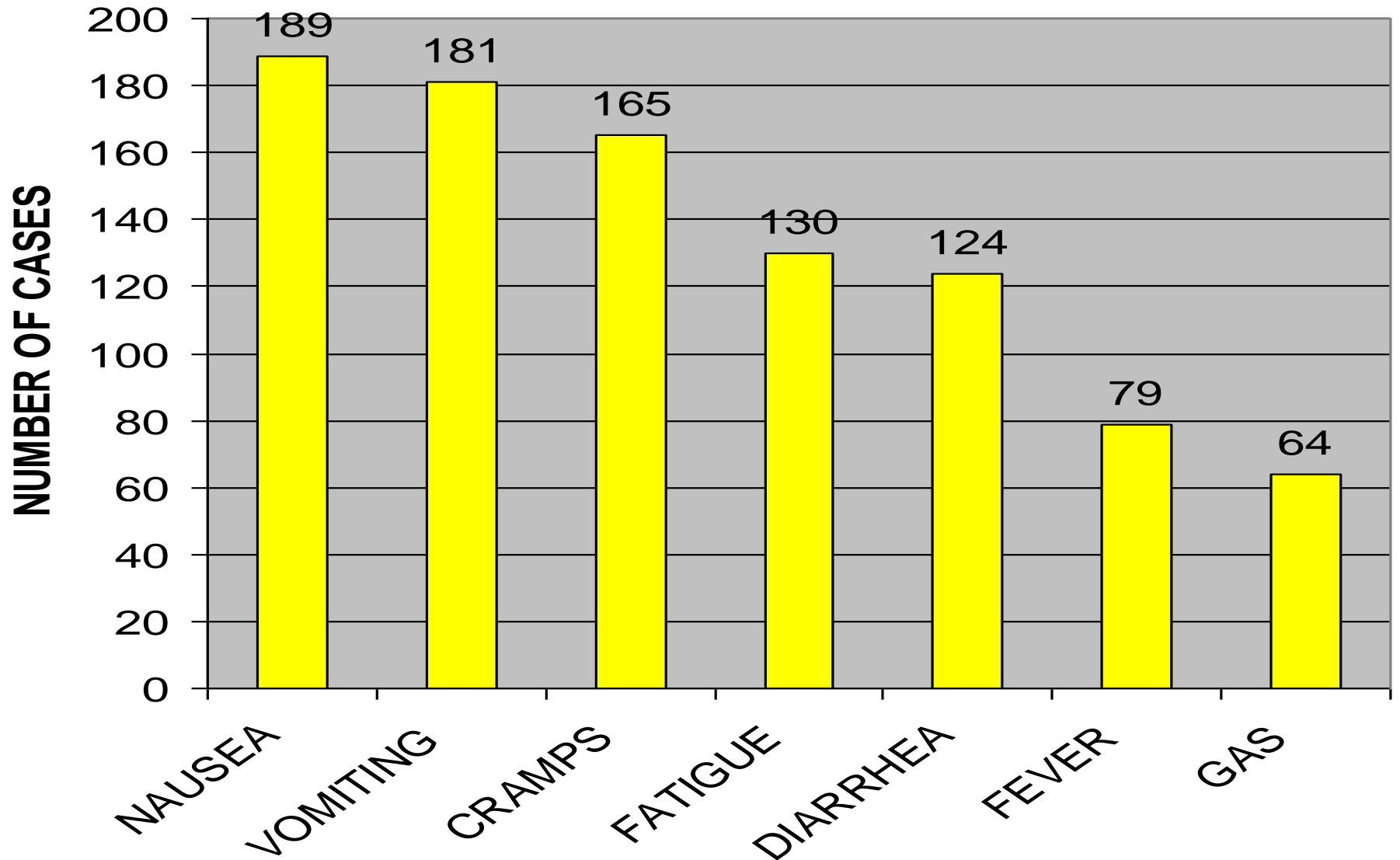
Norovirus Characteristics

- NV's are enteric (intestinal) viruses
- Four subtypes (G1,2,3,4) G2 most common (Ours was G2)
 - Infect the mouth and are shed in the feces
 - Noroviruses are adapted exclusively to humans as hosts
 - Neither nonhuman reservoirs (animals) nor biological vectors (fleas, mosquitoes) are involved the transmission of these viruses

Norovirus Signatures

- Diagnosis can be based on patient SxS alone.
- Stool or vomit sample can verify
- NV “runs it’s course”, replace fluids, eat as able
- High Attack rate among those exposed
 - Attack rates of 50-90%are not unusual (ours was 40% students, 46% staff)
- People can become sick as a result of very low infectious dose
- No long term consequences.

Symptoms in Flagler Noro Outbreak February 2010



Treatment for NV Gastroenteritis

- There is no effective antiviral medication for NV
- There is no vaccine against NV
- Antibiotics are not appropriate and ineffective for treatment of NV or any viral illness
- **TREAT THE SYMPTOMS!!**
- Oral and IV fluids for rehydration and electrolyte balance
- Antispasmodics and analgesics (not anti-diarrheals)

Transmission

- Direct Transmission

- Also called contact transmission
- Most common viral transmission route
- Fecally contaminated hands
- Hand hygiene of the host and recipient affects transmission

- Indirect transmission

- Vehicles: foods, water, ice
- Biological; fecally contaminated hands, viral loaded vomit
- Mechanical vectors; wiping cloths, soiled towels
- Fomites; kitchen surfaces, tables, toilet areas, keyboards and mouse, etc...

Spread of NV is enhanced by:

- Poor personal hand hygiene (ineffective hand washing)
- Vomit in sinks, wastebaskets, on floor or bathroom surfaces leave huge viral loads
- Asymptomatic workers (up to ~ 20% of Norovirus infected persons)
- Low dose for infectivity & duration of viral shedding (22 days or longer)
- Multiple strains of NV & short immuni

Outbreak Characteristics

- Outbreaks are usually limited to 1 to 2 weeks unless transmission is facilitated by:
 1. A closed environment (nursing home, cruise ship, conference center, child care center or **SCHOOL**) that does not follow outbreak management principles!!
 2. Pre/post or asymptomatic infected food handlers who do not follow hygiene recommendations

Norovirus Outbreak Control

- Isolate the sick
- Exclude those infected for 2 to 3 days *AFTER* SxS have stopped
- Increase & supervise thorough hand washing
- Increase bleach cleaning of environmental surfaces esp bathrooms, cafeteria and shared computer keyboards and mouse.
- NEVER ask ill employees to work.

DSC Nursing Students proved* person to person spread, not foodborne

- We have data on 26 of the 60 DSC Ns students who were at RFE on 2/11 and 2/12
- Of the 26 nursing students:
 - 15 (57%) got sick
 - Only 3 of the 15 ate in the cafeteria
 - **12* of 15 got sick and did not eat in the cafeteria**

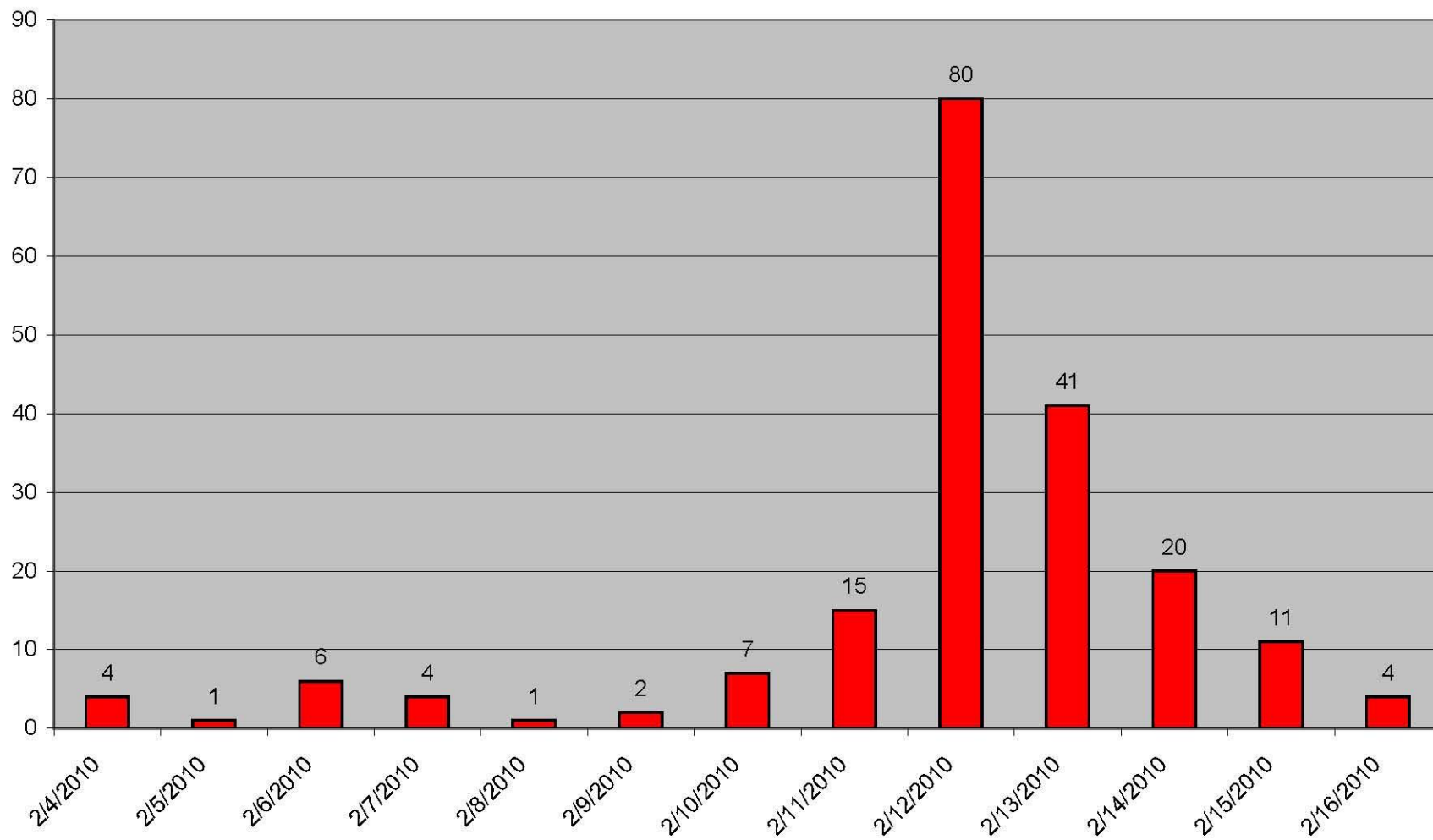
Critical Points

- Quickly recognize NV
- Isolate ill children/send home quickly
- Disinfect immediately
- Viral shedding in stool for up to 3 weeks
- Exclude from duties for 3 days after SxS stopped
- Require strict, increased, thorough handwashing hygiene for 3 weeks

Not just us

- DOH Epi-com 11/18/10: “Anecdotally, we are hearing reports of many people suffering symptoms of norovirus.”
- 2010: numerous NV outbreaks: Flagler, Duval, Seminole, Brevard, Hillsborough, Palm Beach, Bradford, Columbia
- NV can create a low background level of infection within a community until:
 - An infected individual contaminates a common source and an explosive outbreak occurs
 - Most likely what happened in our outbreak (RFE being the common source)

Norovirus outbreak Flagler County 2010 February 4-16



Critical Actions

- **Mandatory reporting**: Any disease outbreak (in a community, hospital or other institution or a foodborne or waterborne outbreak)
- **Contact FCHD** Epi ASAP if *suspected*
- **Specimen collection** critical!!
 - FCHD needs to manage this.
 - We need 3-4 specs

Norovirus outbreak in an Elementary School, Wash DC, Feb 2007

- No food service
- 314 students, 66 staff. 79 ill students, 24 ill staff. 27% overall attack rate however 71% AR w 1st grs
- Computers shared among students & staff in 1st Gr
- Computer mouse and keyboard + for NV G2
- First report of shared computer use w role in disease transmission
- Rec's: Increase thorough handwashing & strong bleach solution cleaning of surfaces