

# **Outbreaks in Long Term Care & Assisted Living Facilities**

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# What is an outbreak?

- **In general:**
  - More illness than expected
- **For LTC / other health care facilities:**
  - More diarrhea or vomiting in unit or facility than would be expected at a particular time of year
- **CDC definition of a foodborne outbreak:**
  - “Two or more cases of a similar illness resulting from the ingestion of a common food in the United States”

# Most common causes of outbreaks in LTC facilities

- Norovirus
- Influenza
- Enteric organisms
  - Salmonella
  - Shigella
  - Campylobacter

# How are they spread?

- Person to person
  - Norovirus
  - Influenza
- Common source
  - Norovirus
  - Enteric organisms
    - Salmonella, Shigella, Campy, etc

# What is Norovirus?

- **Causes viral gastroenteritis: rarely fatal**
  - Vomiting
  - Diarrhea (watery)
  - Low-grade fever
  - Abdominal cramps
  - Headache
  - Nausea
  - Chills
  - Malaise
- **Incubation period: 12 – 48 hours**
- **Duration: 12 – 60 hours**
- **Reservoir: humans**
- **Treatment: fluid replacement**

# Transmission

- *Highly contagious!*
- Very low infectious dose (<100 particles)
- Virus highly concentrated in stool/vomit of infected people
- Communicability:
  - Most contagious while symptomatic
  - Transmission documented at least 2 days after recovery
  - People can shed virus for up to three weeks after recovery

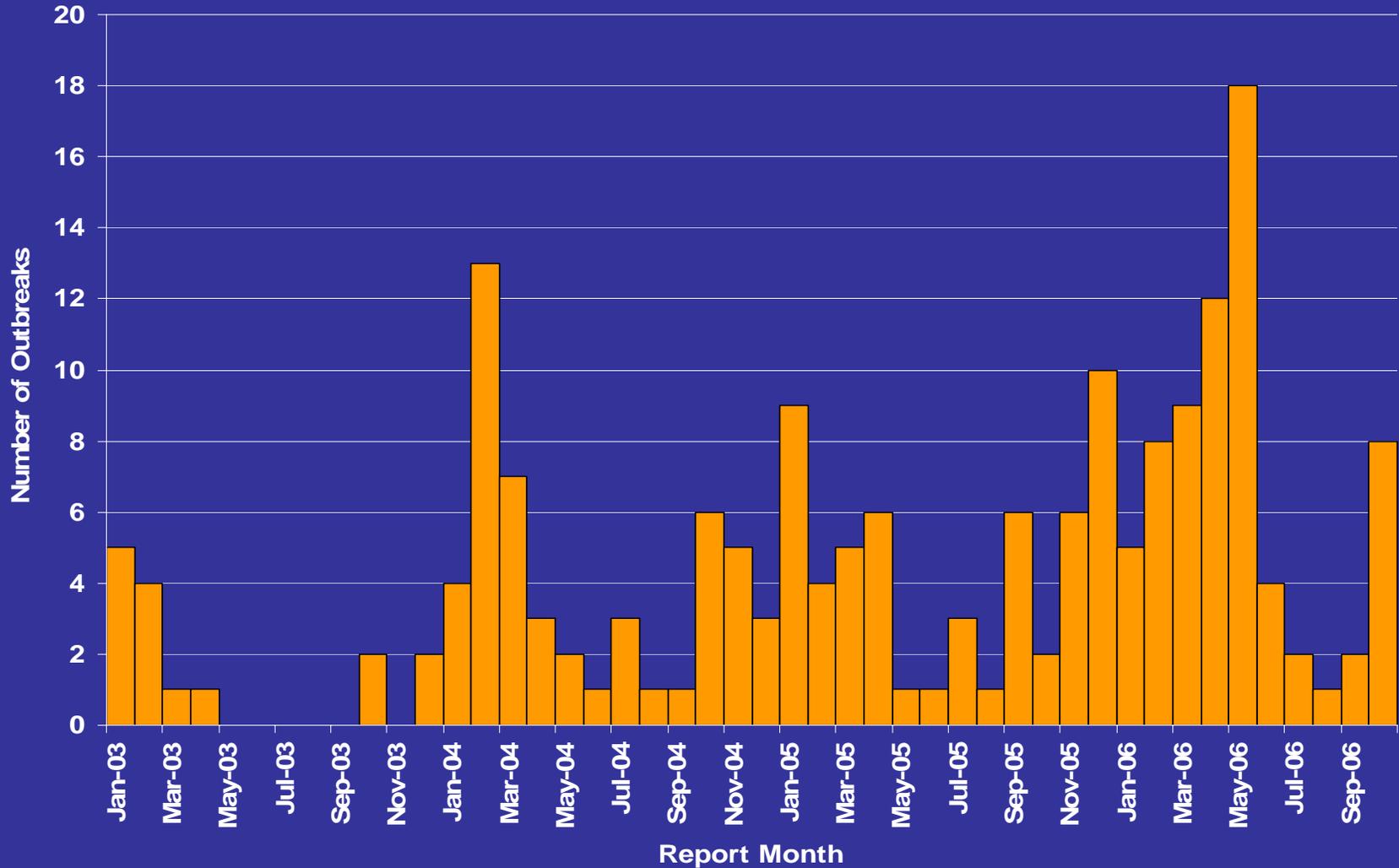
# Transmission

- **Fecal → oral transmission**
  - **Foodborne**
  - **Person to person**
  - **Fomites**
- **Airborne spread (aerosolized vomitus)**

# Norovirus Outbreaks

- Common source vs. person-to-person
- Settings: *long term care facilities*
  - Restaurants
  - Child care centers
  - Catered events
  - Camps
  - Schools
  - Cruise ships
  - Hospitals
  - Swimming pools
- Control measures: *implement immediately*
  - *do not wait for test results*

# Non-foodborne Outbreaks of Known or Suspected Norovirus



# Settings of Non-foodborne Norovirus Outbreaks, 2003-2006\*

Long term care / skilled nsg	128
Assisted living	13
School / school trips	7
Psych / behavioral	6
Summer camps	6
Hospital	5
Child care	3
Rehab facility	2
Campground	1
Correctional facility	1
Misc community / housing units	6
Unknown	5

\*2006 data as of Sept 30

# Norovirus Outbreaks in Health Care Settings, 2003-2006\*

- 157 outbreaks reported
- 23 counties
- Median outbreak duration: 12 days (1-50 d)
- Median attack rates:
  - Residents/patients 30% (0-100%)
  - Number of residents 23 ill (0-79)
  - Staff 13% (0-100%)
  - Number of staff 10 ill (0-49)
- 44% (66) of outbreaks confirmed norovirus (i.e. 2 or more positive specimens)

# What to do if you suspect an outbreak at your facility?

- **Call public health**
  - Either local county or CDPHE
- **Review norovirus guidelines:**  
[http://www.cdphe.state.co.us/dc/epidemiology/dc\\_guide.asp](http://www.cdphe.state.co.us/dc/epidemiology/dc_guide.asp)
- **Implement control measures as soon as possible; do not wait for lab results!**

# Outbreak Reporting Resources

- Local health departments
- Regional epidemiologists
- CDPHE numbers:
  - Communicable Disease Program,  
303-692-2700
  - Consumer Protection Division,  
303-692-3620
  - Alicia Cronquist, 303-692-2629;  
[alicia.cronquist@state.co.us](mailto:alicia.cronquist@state.co.us)

# What to Expect from Public Health?

- Review control measures with you
- Review circumstances of outbreak and determine degree of additional investigation necessary

# What to Expect from Public Health

- Is it an outbreak?
  - How many residents, staff ill?
  - What is “usual” at your facility?
- Determine if norovirus is likely cause
  - Symptoms, duration of illness, hospitalizations? deaths?
- Determine if spread likely person-to-person or from common source (e.g. food)
  - First **onset date**, **onset dates** of subsequent persons, distribution around facility

# Next Steps for PH

- **If outbreak likely norovirus and appears to be spread person-to-person**
  - Focus on control measures
  - PH will ask facility to monitor for new cases and submit summary info at end of outbreak
  - PH will stay in touch with facility to be sure things are resolving, no new issues, etc.
  - Facility may send specimens for norovirus testing on fee for service basis

# Next Steps for PH

- If outbreak does not seem to be norovirus OR appears to be from a common source (such as food)
  - Focus on control measures
  - PH will likely conduct more extensive investigation; ask for more info
  - PH may request specimens be sent to state lab for testing (free of charge)

# Control measures – health care / residential facilities

## Residents/patients:

- Contact precautions for ill residents
- Restrict ill persons to rooms (until 2 days after symptoms resolve)
- Increase handwashing
- Discontinue group activities in affected units
- **Create a line list of ill residents**

# Control measures – health care / residential facilities

## Staff

- Increase handwashing / in service
- Exclude ill staff (until 2 days after symptoms resolve)
- Ask staff not to work at any other facilities during this time
- Discontinue “floating” from affected to unaffected units/wings
- Use gloves/gowns
- **Create a line list of ill staff**

# **Control measures – health care / residential facilities**

## **Facility:**

- **Increase facility cleaning/disinfecting with appropriate agents**
- **10% solution of bleach**
- **Post signs for visitors about GI outbreak (please don't say “flu outbreak”)**
- **Consider halting/limiting admissions**

# Recommendations for Hand Hygiene

- **Traditional soap and water**
  - mechanical removal
  - thorough rinsing and drying
  - increase emphasis during outbreaks
- **Alcohol hand rubs**
  - effective *adjunct* to traditional wash
- **Gloves are important PPE, but not a replacement for hand hygiene**



# **Control measures – any setting with food service**

- **Prevent food handlers from working while ill with diarrhea or vomiting (sick leave policies)**
- **Encourage workers to report on-the-job illness to management**
- **Exclude ill workers until at least 2 days after illness resolves (vomiting and diarrhea cease)**
- **Increase cleaning throughout facility**
- **Glove order during outbreaks**

# Diagnosis

- **CDPHE and commercial laboratories can test bulk stool/vomit**
- **Use real-time PCR (polymerase chain reaction)**
- **Best to collect specimen during first 48 hours of illness**
- **Outbreak: 2-6 specimens from different ill individuals**
- **Testing on fee-for-service basis (\$103/specimen at state lab)**

# **Norovirus in an Assisted Living Facility:**

**Foodborne outbreak *during* a  
propagated outbreak, April 2004**

# The call

- **Friday April 23**
- **MD reported that on Thursday he had seen 3 patients in the ED with vomiting, diarrhea and low grade temp; sudden onset of symptoms**
- **All 3 patients were admitted**
- **All live at same long term care facility**

# Facility

- **170 residents (Assisted Living and Independent Apts)**
- **Median age 87 years**
- **Meals eaten in 3 dining rooms served by one kitchen**

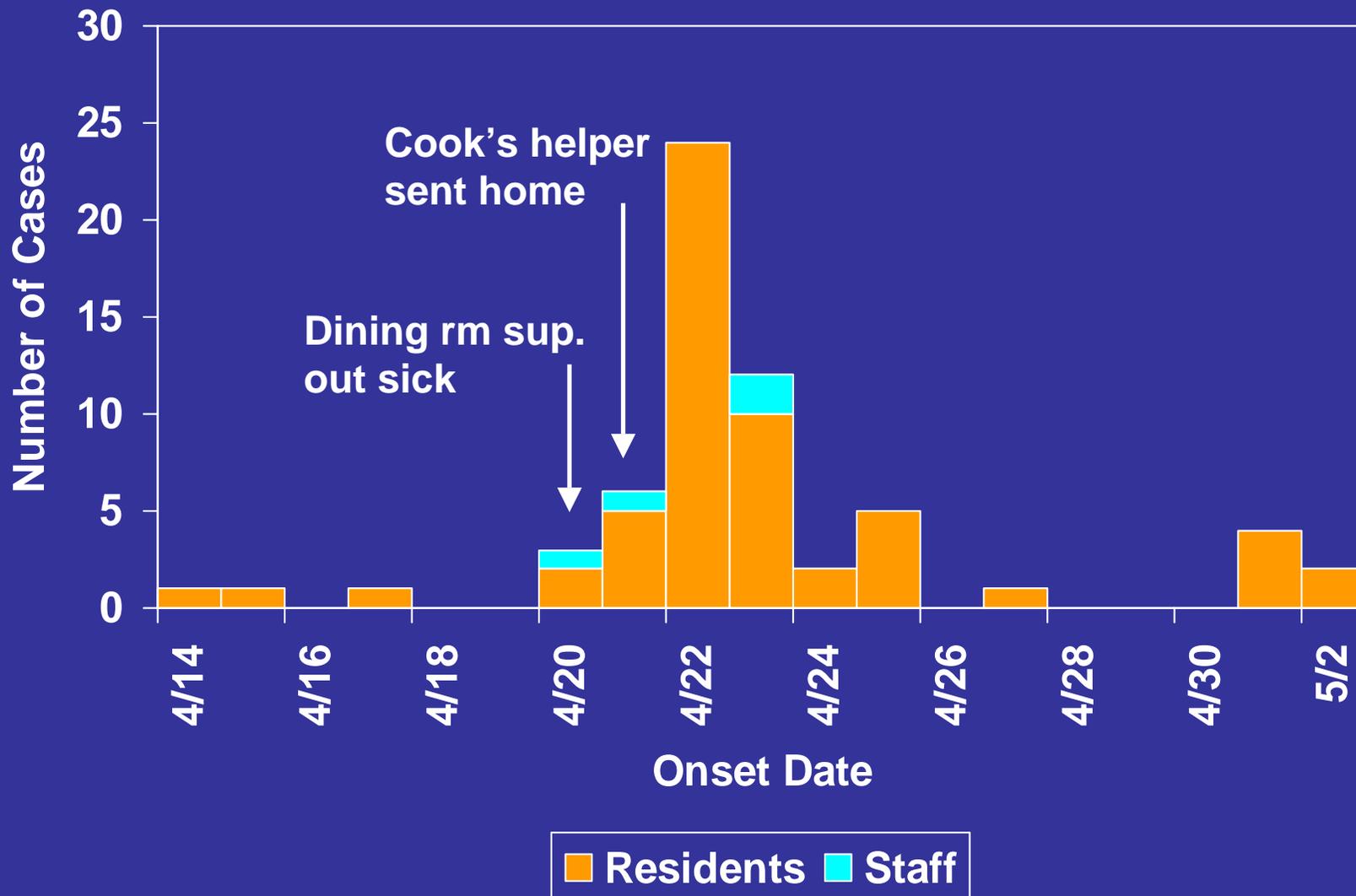
# Where to start?

- Suspected foodborne outbreak
- Suspected bacterial toxin (*Staph aureus* enterotoxin)
- Chicken dumplings for Thursday lunch
- Local health dept called the facility
- Requested line list of ill residents
- Requested stool specimens
  - At hospital
  - At facility

# Investigation

- Inspected the kitchen
- Reviewed control measures
- Interviewed staff about illness – especially kitchen staff
- Attempted to interview residents
  - Hard to find
  - Recall issues

# Cases of GI illness at a Metro-Denver LTC facility, 2004



# Cases

- **58 total residents ill (34% attack rate)**
- **4 staff ill**
- **5 hospitalizations**
- **No deaths**
- **7 / 9 positive for norovirus by PCR**
  - **6 residents**
  - **1 cook's helper (tested positive again 2 weeks later)**

# How did it start?

- Don't know
- Day treatment facility with reported similar illness among staff members
- Family members of residents reported similar illness in community
- Message:
  - Can't prevent norovirus from entering a facility
  - CAN identify outbreaks quickly
  - CAN prevent further spread

**Questions?**