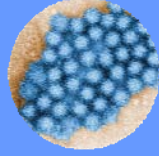


Norovirus Infections in Long Term Care Facilities: Epidemiologic Perspectives



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Norovirus Infections in LTC Facilities: Background

- Originally called Norwalk Virus. Named after a large elementary school outbreak in Norwalk, OH.
- Norovirus (NV) virus of the Caliciviridae family formerly called Norwalk-like virus, Norwalk virus, SRSVs, Snow Mountain virus and "winter vomiting disease".
- NV causes approximately 90% of non-bacterial outbreaks of gastroenteritis around the world.
- Received national attention beginning in the late 80's due to the large number of outbreaks on cruise ships.

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Norovirus Infections in LTC Facilities: Signs and Symptoms

- Most often occur in semi-closed communities.
- Symptoms usually occur 24 to 48 (median = 30 to 36 hours) after exposure.
- Self-limiting disease (lasting 24 to 60 hours) characterized by nausea, vomiting, diarrhea, abdominal pain, fatigue, muscle aches, headaches.
- Number of deaths estimated around 300 cases per year with most occurring in the very young, elderly and immunocompromised individuals.
- Predisposition to infection in persons with blood type O, while types B and AB can confer partial protection.

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Norovirus Infections in LTC Facilities: Testing and Diagnosis

- During outbreaks, specimens to be tested at the WSLH are collected in Enteric Kit # 10 (Cary Blair transport media).
- Fee exempt testing through health department approval.
- Usually 4 – 6 symptomatic individuals (residents and staff) should be tested.
- Persons being tested should have symptoms that include more than just diarrhea in LTCFs.
- WSLH will also rule out enteric bacterial pathogens in addition to norovirus testing.
- Diagnosis of NV done by RT-PCR assays.
- Results forwarded to CDES staff who notify LHD.

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Norovirus Infections in LTC Facilities: Prevention and Control

- NVs are extremely infectious and require a very small number of virus particles to spread infection to others.
- Hand washing is an effective method to reduce the spread of NV.
- Rapidly inactivated by chlorine-based disinfectants, but less susceptible to alcohols and detergents (contrary to some product labels).
- CDC: “generally recommend washing with soap and water as the preferred method of hand hygiene. Use of alcohol hand gels after washing with soap and water or in situations when such facilities are not available, may be helpful in outbreak settings”.

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Norovirus Infections in LTC Facilities: Disinfection

What works best:

Chlorine bleach and Virkon

Ineffective disinfectants:

Quaternary compounds, ethanol compounds.

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Norovirus Infections in LTC Facilities: Disinfection

Chlorine bleach concentrations and mixing instructions:

1000 ppm

Use for non-porous surfaces, tile floors, counter-tops, sinks, toilets.

1/3 cup bleach in 1-gallon of water (1:50 dilution).

5000 ppm

Use for porous surfaces, wooden floors.

1 2/3 cup bleach in 1-gallon water (1:10 dilution)

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Gastrointestinal NFBOs in LTCFs (January 2006 through June 2009)

Year	NFBOs	LTCF	NOROVIR US	AGE
2006	57	46	46	0
2007	54	44	34	10
2008	113	93	88	5
2009 (Jan – Jun)	106 *	101	86	12
Totals	331	284	254	27

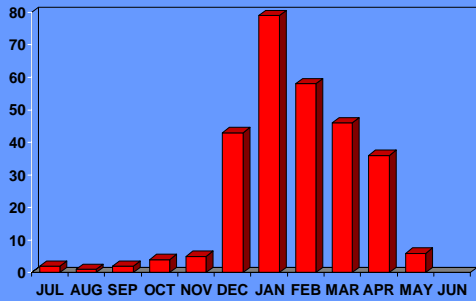
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Gastrointestinal NFBOs in LTCFs (January 2006 through June 2009)

Year	Residents	Staff	Hospitalization	Death
2006	1458	608	42	3
2007	1316	434	33	3
2008	2925	1189	68	18
2009 (Jan – Jun)	2799	1545	81	12
Totals	8498	3776	224	36

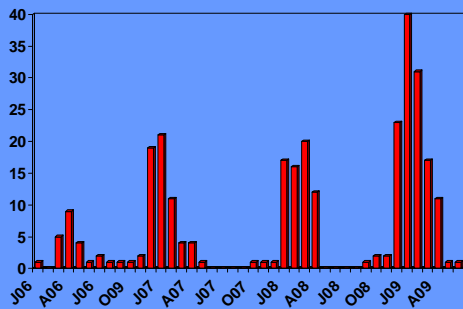
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Seasonality of Norovirus Outbreaks 2006 – 2009*



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Seasonal Trends with Norovirus Outbreaks 2006 – 2009*



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Norovirus Infections in LTC Facilities: Preparedness

- Make copies of the *“RECOMMENDATIONS FOR THE PREVENTION AND CONTROL OF VIRAL GASTROENTERITIS OUTBREAKS IN WISCONSIN LONG-TERM CARE FACILITIES”* readily available to all staff members.
- Have a list of local health contacts available when outbreaks occur.
- Have signage “on hand” for immediate posting.
- Have policies in place to deal with ill residents and staff.

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Norovirus in Long Term Care

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F441



§483.65 Infection Control

The facility must establish and maintain an Infection Control Program designed to provide a safe, sanitary and comfortable environment and to help prevent the development and transmission of disease and infection.

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F441 - §483.65(a)



Infection Control Program

- The facility must establish an infection control Program under which it –
 - Investigates, controls, and prevents infections in the facility
 - Decides what procedures, such as isolation, should be applied to an individual resident
 - Maintains a record of incidents and corrective actions related to infections

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Intent of Regulation

- Assure facility develops, implements, and maintains an Infection **Prevention** and Control Program in order to prevent, recognize, and control, to the extent possible, the onset and spread of infection within the facility.

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Historical Perspective

- 2/5/07 DQA Memo 07-003 – Norovirus Recognition, Transmission, Prevention and Reporting
- MMWR 8/07 – Norovirus in US '06-'07
 - New Strains circulating
 - Gastrointestinal illness listed as primary cause of death for one resident
 - Several states to include WI reporting increased # of outbreaks

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Historical Perspective cont'd

- DPH Alert 1/11/08 distributed via DQA List Serve - Norovirus Activity and Important Recommendation for Contact Precautions
 - ALL residents of LTC facilities with signs and symptoms indicative of norovirus should be empirically placed in contact precautions

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Historical Perspective cont'd

- IDSA 2008 Clinical Practice Guideline for the Evaluation of Fever and Infection in Older Adults Residents of LTC Facilities
 - "Norovirus, a particularly prevalent and highly contagious agent deserves specific comment for several reasons. First, fatal cases of norovirus infection occur the majority of time among LTCF residents..."

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Historical Perspective cont'd

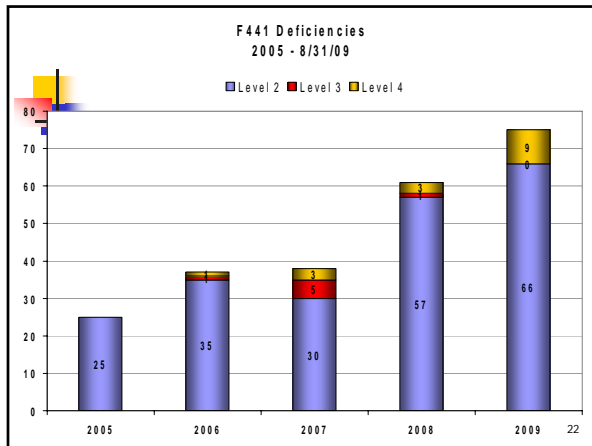
- 1/1/09 – All state public health agencies required to report norovirus outbreaks and cases to CDC
- 1/12/09 – DPH Recommendations for the Prevention and Control of Viral Gastroenteritis Out breaks in WI LCF Facilities distributed via DQA List Serve

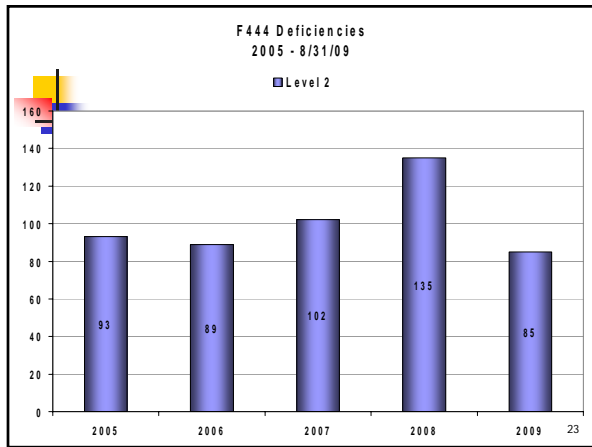
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What are the Issues?

- No surveillance program
- Retrospective versus active surveillance
- Facility staff aware of "bug" going around but no action taken to prevent and control further transmission
- In many instances, ill staff worked thereby transmitting the virus to residents and other staff

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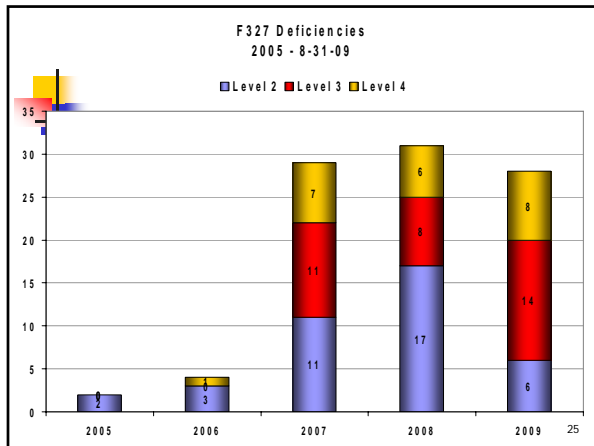
What are the Issues?

E327- Hydration

- Significant cause of morbidity & mortality in the elderly
- Integral part of survey process
 - WHP
- Hydration Protocol
 - Used with infectious disease processes; Flu, Norovirus, Symptomatic UTI

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Outbreak Preparedness

- **Prior** to any outbreak
- Determine usual rates of infection based on facility surveillance data
- In collaboration with medical director, develop policies and procedures to address an outbreak

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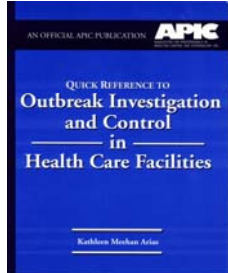
Outbreak Preparedness

- Educate staff re: their role in prevention and control
 - Employee Health
 - Handwashing
 - Implementing Precautions
 - Resident & Staff Line Lists
 - Specimen collection
 - Monitor resident health
 - LPHD notification

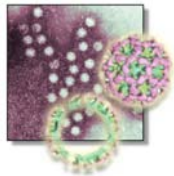
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Outbreak Control

- Priority is to prevent, control and prevent further transmission.



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Norovirus in a LTC Facility

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April 12th to May 3rd 2008

NOROVIRUS OUTBREAK

4 cases confirmed by City of Milwaukee Health Dept., 1 confirmed in the hospital

76 residents affected with symptoms over a 21 day period, 4 hospitalized

55 staff members affected with symptoms and off of work over the 21 day period



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So when your employees call in with an excuse like this.....



Believe 'em and tell 'em to stay home!!!!

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Focus 2009 Norovirus

Shared Practices and Lessons Learned
Golden Living

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Steps Taken

- Proactive Education
 - Current consistent information from DHS, CDC, APIC, & Golden Living
 - Reinforced education with suspected cases
 - Include ancillary dept., family, & visitors
- Heighten awareness of cases in the community

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I.C. process cont.....

- Contact P.H. w/ suspected cases for directives
 - P.H. will provide specimen kits
 - Send to State Lab of Hygiene (SLH)
 - County may request the use of their line listing
- Hydration Status of Sx Res.
 - Monitor, assess & doc. hydration status
 - Review use of Diuretics & Bowel preps
 - Encourage fluids
 - Consult w/ physician

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Disinfectant

- Effective use of a disinfectant
 - 1:10 bleach solution
 - Labeled containers (make fresh daily)
- Increase frequency of Environmental surface cleaning
 - Bathrooms, Door knobs, Kiosks, Handrails, Light switches, etc.
 - Minimize agitation of contaminated linen & textiles

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Signage

- Post Transmission Based Precautions
 - Please see Nurse before entering room
 - Outside of room or unit
- Hand Hygiene Reminders
- Notice to Public when cases are present in the facility

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Symptomatic Staff

- Remain off until 48 hrs after sx subside
 - Dietary 72 hrs.
- Monitor recover status on line listing
- Notification to scheduler and others of symptomatic staff.

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Documentation

- Current Surveillance Data Forms and Line Listing
- Quantitative analysis of data to limit the spread
- Line listing kept on 24 hr board
- Review P & P and your implementation at QA for recommended process improvements

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Statistics

- 19 of 24 facilities had res. w/ G/I symptoms
- 12 of 24 facilities negative for Noro
- 7 of 24 facilities had confirmed cases
 - 4 of 7 had 15 or less cases total
 - The 2 facilities with the highest number of cases had initial onset on the weekend

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Top 3 Measures that were Most Successful

- Education/Monitoring Infection Control Practice
- Surveillance/ Units placed on Transmission Precautions
- Overall Heightened Awareness

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Lessons Learned

- Act immediately
- Use approved disinfectant
- Track & Communicate Staff that are SX
 - Adhere to time off recommendations
- Opportunities w/ weekend Surveillance
 - Number of total incidence's was the highest
- Enc. Collaboration w/ P.H. and DHS

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