Core 5: Outreach and Extension

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Outreach

• A function common to all university campuses.
• Outreach programs focus on solving real-world problems through direct intervention and interaction with target populations.

Cooperative Extension Service

• Extension is a formalized educational system housed at all land-grant universities within the U.S.
• Designed to help people use evidence-based knowledge to improve their lives.
• Extension has an extensive local presence (County Extension Centers staffed by Extension Agents).
Focus of Activities

• Translate and disseminate knowledge about foodborne viruses.

• Four target audiences:
  – Foodservice Operations – Retail and commercial establishments
  – Consumers – General public
  – Food Safety/Public Health Professionals – Environmental health specialists, state epidemiologists, food safety educators, Extension agents, Registered Dietitians
  – Commodity Industries – Fresh produce and shellfish
NoV Prevalence Study

• **Objective:**
  – Determine prevalence of NoV in public foodservice bathrooms under non-outbreak conditions.

• **Data Collection:**
  – Samples from one public men’s and one public women’s restrooms in commercial food establishments.
  – Sampled 4 high-touch surfaces:
    • flush handle of toilet,
    • underside of toilet seat,
    • faucet of handwashing sink, and
    • inner door handle of outer door
Sampling Frame

Ohio

South Carolina

New Jersey
## Results: Environmental Samples

<table>
<thead>
<tr>
<th>State</th>
<th>Total FSE</th>
<th>% Sample</th>
<th>Sites visited</th>
<th>Number Samples Collected</th>
<th>Number Analyzed</th>
<th>Number Positives</th>
<th>% Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC</td>
<td>7,565</td>
<td>16%</td>
<td>120</td>
<td>681</td>
<td>681</td>
<td>15</td>
<td>2.2</td>
</tr>
<tr>
<td>OH</td>
<td>21,306</td>
<td>46%</td>
<td>345</td>
<td>1988</td>
<td>235</td>
<td>5</td>
<td>2.1</td>
</tr>
<tr>
<td>NJ</td>
<td>17,388</td>
<td>38%</td>
<td>285</td>
<td>1520</td>
<td>1285</td>
<td>21</td>
<td>1.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>--</td>
<td>100%</td>
<td>750</td>
<td>4192</td>
<td>2201</td>
<td>41</td>
<td>1.9</td>
</tr>
</tbody>
</table>
## Significant factors

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Category</th>
<th>No. with NoV present</th>
<th>No. with NoV Absent</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Women</td>
<td>10</td>
<td>73</td>
<td>5.1 (1.1-23.9)</td>
</tr>
<tr>
<td></td>
<td>Man</td>
<td>2</td>
<td>74</td>
<td></td>
</tr>
<tr>
<td>Toilet flush mechanism</td>
<td>Automatic</td>
<td>3</td>
<td>9</td>
<td>5.0 (1.2-21.3)</td>
</tr>
<tr>
<td></td>
<td>Manual</td>
<td>10</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>Outer door handler type</td>
<td>Lever</td>
<td>1</td>
<td>58</td>
<td>0.14 (0.02-1.13)</td>
</tr>
<tr>
<td></td>
<td>Non-lever</td>
<td>12</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Handle</td>
<td>7</td>
<td>43</td>
<td>3.12 (1.0-9.8)</td>
</tr>
<tr>
<td></td>
<td>Non-handle</td>
<td>6</td>
<td>115</td>
<td></td>
</tr>
<tr>
<td>Sink faucet type</td>
<td>Cross handle</td>
<td>1</td>
<td>0</td>
<td>38.0 (1.5-983.1)</td>
</tr>
<tr>
<td></td>
<td>Non-cross handle</td>
<td>12</td>
<td>158</td>
<td></td>
</tr>
<tr>
<td>Paper towel dispenser material</td>
<td>Plastic</td>
<td>4</td>
<td>15</td>
<td>4.2370 (1.2-15.4)</td>
</tr>
<tr>
<td></td>
<td>Non-plastic</td>
<td>9</td>
<td>143</td>
<td></td>
</tr>
<tr>
<td>Trash can type</td>
<td>Trash can attached</td>
<td>4</td>
<td>6</td>
<td>11.3 (2.7-47.2)</td>
</tr>
<tr>
<td></td>
<td>Non-trash can</td>
<td>9</td>
<td>152</td>
<td>attached</td>
</tr>
</tbody>
</table>
Primer: Best Practices in Evaluation of Food Safety Interventions

- Why necessary to conduct a good evaluation
- Importance of a rigorous research design
- Counterfactual condition and its role in establishing causality
- Measures to avoid threats to internal and external validity
- Practical problems (and solutions) when using random assignment
- Reasonable alternatives to randomized designs
- Importance of conducting a power analysis
- Factors to consider when defining outcome measures
- Evaluation resources
Foodservice Intervention

• **Objective:**
  – Operators create customized vomit/fecal matter clean-up procedures to be in compliance with 2-501.11.

• **Significance**
  – 2013 FDA Food Code includes regulatory provision 2-501.11, Clean up of Vomiting and Diarrheal Events.
  – Universal lack of agreement on procedural clean-up details.
  – 7 of 10 FSEs independently owned and operated.
  – Most independents have limited capacity to develop procedures leading to the adoption of existing procedures.
### Industry-Driven Clean-Up Procedures: Overview of Methods

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data</th>
<th>Data Collection Method</th>
<th>Analysis Software</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1: Focus groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1</td>
<td>Challenges/solutions to stakeholder involvement</td>
<td>Focus groups</td>
<td>NVivo</td>
<td>NVivo will be used to code focus group transcripts for themes.</td>
</tr>
<tr>
<td>Q2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective 2: Development of Vomit/Fecal Cleanup Guidelines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3</td>
<td>Suggested content for guidelines</td>
<td>Google Drive</td>
<td>NVivo</td>
<td>NVivo will be used to organize stakeholders’ comments, analyze content, and generate themes.</td>
</tr>
<tr>
<td>Q4</td>
<td>Frequency of stakeholder involvement</td>
<td>Google Drive/Google Analytics</td>
<td>None</td>
<td>Google Analytics will be used to monitor stakeholder activity during development of guidelines.</td>
</tr>
<tr>
<td>Objective 3: Surveys or Telephone/Virtual Interviews</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4</td>
<td>Stakeholder attitudes toward involvement</td>
<td>Web-based surveys or telephone/virtual interviews</td>
<td>SAS</td>
<td>Descriptive statistics can be calculated and t-tests performed using SAS.</td>
</tr>
</tbody>
</table>
Intervention Evaluation

- **Convenience Sample**
  - 90 commercial establishments in SC – focus on independents
  - 9234 commercial non-chain facilities (61% of FSE in SC)

- **Study Design:**
  - Randomized control trial
  - Pretest, posttest, post follow-up

- **Intervention**
  - Integrate into existing food safety training

- **Five-level Evaluation Plan**
  - 1: Reactions to intervention
  - 2: Individual knowledge
  - 3: Individual behavior
  - 4: Environmental and institutional changes
  - 5: Cost benefit
CONSUMERS
Objective:
- Describe consumer awareness and knowledge of NoV in order to inform communication strategies.

Study Design:
- Surveyed 1,051 U.S. adults using the GfK KnowledgePanel, a Web-based panel designed to be nationally representative of the U.S. population.

Publication:
• **Research Questions**
  – Do materials accurately address the three prevention and control strategies for Noroviruses – cohorting of sick individuals, handwashing, and environmental sanitation?
  – Are materials written in plain English?

• **Study Design**
  – Web-based English-language education materials about NoV
    – 60 artifacts (January 1, 2011 through May 23, 2013)
  – USDA database – 144 artifacts
Content Analysis—Coding Criteria

- **Identifying Information** (title, file type, audience, date)
- **Format** (graphics)
- **Readability** (word count, Flesch Reading ease, Flesch-Kincaid Grade Level)
- **Content** (Food Safety Hazards--viruses, bacteria, parasites, non-microbial; statistics)
- **Prevention and Control Strategies** (hand washing, type of soap, hand sanitizers, isolation, vomit/fecal cleanup)
Educational Artifacts: Content Analysis

Coders

- **Three** coders analyzed the USDA database content (N=144).
- **Four** coders analyzed the English WWW content (N=60).

Inter-rater reliability

- Two coders for all documents.
- Third coder reconciled disagreements.
# Content Analysis of USDA Food Safety Education Materials

<table>
<thead>
<tr>
<th>USDA Education and Training Database</th>
<th>Number of Artifacts</th>
<th>Maximum Possible Score</th>
<th>Mean Quality Score</th>
<th>Min Score</th>
<th>Max Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Virus</td>
<td>32</td>
<td>2</td>
<td>1.3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Hand Hygiene</td>
<td>144</td>
<td>7</td>
<td>2.3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Environmental Disinfection</td>
<td>100</td>
<td>2</td>
<td>1.0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Exclusion (Not Cooking While Sick)</td>
<td>9</td>
<td>2</td>
<td>1.1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Vomit Cleanup</td>
<td>2</td>
<td>5</td>
<td>1.0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>144</td>
<td>19</td>
<td>3.6</td>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>
# Content Analysis of Norovirus Materials on the Worldwide Web

<table>
<thead>
<tr>
<th>Worldwide Web (Google Advanced Search)</th>
<th>Number of Artifacts</th>
<th>Maximum Possible Score</th>
<th>Mean Quality Score</th>
<th>Min Score</th>
<th>Max Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand Hygiene</td>
<td>60</td>
<td>8</td>
<td>2.3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Environmental Disinfection</td>
<td>32</td>
<td>2</td>
<td>1.2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Exclusion (Not Cooking While Sick)</td>
<td>27</td>
<td>2</td>
<td>1.5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Vomit Cleanup</td>
<td>29</td>
<td>5</td>
<td>3.4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>17</strong></td>
<td><strong>8.3</strong></td>
<td><strong>2</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>
Research Questions
• Do materials accurately address prevention and control strategies for NoV?
• Are materials written in plain Spanish?

Inclusion Criteria
• Spanish language
• Published in the U.S. and Spanish-speaking countries in Americas and Spain
• Published 01/01/2011 to date of initial search
• Related to noroviruses and food
• Target audience is consumers

Exclusion Criteria
• Blogs, news articles, theses, dissertations, research articles, Wikipedia, question/answer sites, forums, and continuing education training materials.
FOOD SAFETY PROFESSIONALS
• **Objective:**
  – Characterize food safety and infection preventionist knowledge of NoV illness, transmission, prevention, control, and food handling (food safety professionals only)

• **Study Design:**
  – Web-based survey (n= 1,255) administered by working with professional associations (e.g., NEHA and APIC).

• **Publications:**
Professionals Survey:  Key Findings

Food Safety (n=314)

- 66% identified NoV common cause of FBD.
- 5% (n=16) answered all 20 T/F questions correctly; 65% answered at least 15 of 20 questions correctly
- Food handling content domain most incorrect answers
- Knowledge gaps:
  - Restricting NoV infected restaurant workers
  - Recommended sanitizing solution for elimination of NoV from contaminated surfaces

Infection Preventionists (n=941)

- 44% identified NoV as common cause of FBD.
- 2% (n=16) answered all 15 T/F questions correctly; 64% answered at least 11 of 15 questions correctly.
- Knowledge gaps:
  - Recommended sanitizing solution for elimination of NoV from contaminated surfaces
  - NoV are leading cause of foodborne disease (not bacteria)
Web-Based Curriculum

- Develop six modules—overview of noroviruses, molecular biology, detection, epidemiology and risk, control/prevention strategies, and communication.
- Curriculum framework based on Revised Bloom’s Taxonomy (RBT) to maximize alignment of the curriculum.
- Content reviewed by executive team and other experts.
- Knowledge Assessment
  - 25-item test (multiple choice) after completion of each module
  - 75% is pass score
Revised Bloom’s Taxonomy

• RBT curriculum includes:
  – Objectives
  – Content summary--narrative summary of essential concepts
  – Learning activities
• Learning maximized if curriculum near perfectly aligned.
• Alignment is important because it:
  – increases validity of the knowledge assessment and
  – increases participants opportunity to learn by spending time on essential rather than non-essential concepts.
# Module Blueprint

<table>
<thead>
<tr>
<th>Competency #/Objective #</th>
<th>Unit Titles/Competency and Objective Statements (The learner will be able to:)</th>
<th>Course Weight</th>
<th>Time to Complete Module</th>
<th>RBT Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>MOLECULAR VIROLOGY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOV01.00</td>
<td>Identify the biological characteristics of Noroviruses.</td>
<td>100%</td>
<td></td>
<td>A1</td>
</tr>
<tr>
<td>NOV01.01</td>
<td>Identify Norovirus classifications.</td>
<td>33%</td>
<td></td>
<td>A1</td>
</tr>
<tr>
<td>NOV01.02</td>
<td>Identify the functional and structural features of Noroviruses.</td>
<td>33%</td>
<td></td>
<td>A1</td>
</tr>
<tr>
<td>NOV01.03</td>
<td>Identify how Noroviruses replicate and cause illness.</td>
<td>33%</td>
<td></td>
<td>A1</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td><strong>EPIDEMIOLOGY AND RISK</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOV02.00</td>
<td>Understand the epidemiology of Noroviruses.</td>
<td>100%</td>
<td></td>
<td>B2</td>
</tr>
<tr>
<td>NOV02.01</td>
<td>Explain the types of epidemiological studies used to study Noroviruses.</td>
<td>20%</td>
<td></td>
<td>A2</td>
</tr>
<tr>
<td>NOV02.02</td>
<td>Interpret outbreak statistics for Noroviruses.</td>
<td>30%</td>
<td></td>
<td>A2</td>
</tr>
<tr>
<td>NOV02.03</td>
<td>Identify the primary modes of transmission of Noroviruses.</td>
<td>30%</td>
<td></td>
<td>A1</td>
</tr>
<tr>
<td>NOV02.04</td>
<td>Explain risk analysis as it relates to Noroviruses.</td>
<td>20%</td>
<td></td>
<td>B2</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td><strong>DETECTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOV03.00</td>
<td>Identify the basic methods of detection of foodborne viruses.</td>
<td>100%</td>
<td></td>
<td>A1</td>
</tr>
<tr>
<td>NOV03.01</td>
<td>Identify how clinical, water, food and surface samples are collected for testing of the presence of Noroviruses.</td>
<td>50%</td>
<td></td>
<td>A1</td>
</tr>
<tr>
<td>NOV03.02</td>
<td>Identify how clinical, water, food, and surfaces samples are analyzed for Noroviruses.</td>
<td>50%</td>
<td></td>
<td>A1</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td><strong>CONTROL AND PREVENTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOV04.00</td>
<td>Understand prevention and control strategies for Noroviruses.</td>
<td>100%</td>
<td></td>
<td>B2</td>
</tr>
<tr>
<td>NOV04.01</td>
<td>Explain features of Noroviruses that impact the ability to control.</td>
<td>25%</td>
<td></td>
<td>A2</td>
</tr>
<tr>
<td>NOV04.02</td>
<td>Summarize the methods of prevention and control of Noroviruses.</td>
<td>50%</td>
<td></td>
<td>A2</td>
</tr>
<tr>
<td>NOV04.03</td>
<td>Explain how to control Noroviruses under outbreak conditions.</td>
<td>25%</td>
<td></td>
<td>B2</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td><strong>COMMUNICATING WITH OPERATORS ABOUT NOROVIRUSES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOV05.00</td>
<td>Understand the basic components of effective food safety education.</td>
<td>100%</td>
<td></td>
<td>B2</td>
</tr>
<tr>
<td>NOV05.01</td>
<td>Explain principles of effective communication.</td>
<td>75%</td>
<td></td>
<td>B2</td>
</tr>
<tr>
<td>NOV05.02</td>
<td>Identify credible resources for communicating with operators about enteric viruses.</td>
<td>25%</td>
<td></td>
<td>A1</td>
</tr>
</tbody>
</table>
• **Produce Safety Alliance (PSA)**
  – Provided information relative to viruses for the national Good Agricultural Practices (GAPs) curriculum, which is currently under development.
  – Work with Food Safety Educators group

• **Updates to IAFP Professional Development Groups**

• **Two infosheets for viral contamination of berries:**
  – workers
  – farm managers
Harvesters: keeping your hands clean

Dirty hands can contaminate produce with viruses that cause human illnesses, like hepatitis A and norovirus.

Prevention

is the best control and good hand hygiene is critical to making berries safe.

1. Wash your hands thoroughly with soap and clean water, especially after using the bathroom.
2. Do not rely on alcohol-based hand sanitizers, they are not completely effective against foodborne viruses like norovirus and hepatitis A.

Berries are staple foods for viral contamination.

- They are hand-picked and these viruses spread easily with hand contact via the fecal oral route (poop to mouth).
- Berries are generally not heated or cooked before being eaten so virus is not destroyed.
- The use of sanitizers, washing, and freezing berries is not effective for removing or destroying the virus.

Foodborne viruses

Noroviruses are the leading cause of foodborne illnesses.

- Norovirus (the “stomach flu”) causes nausea, vomiting, and diarrhea. There are over a million foodborne cases per year in the U.S. alone. Hepatitis A illness starts with flu-like symptoms and then progresses to jaundice (yellowing of the skin & eyes) and sometimes other complications.

For both viruses, it is possible to be infected and not show symptoms, the sick person is also infectious for days to weeks before, during, and after illness, so keeping your hands clean is especially important. This is also important if you are taking care of someone who is ill.

- Norovirus infection is miserable but usually lasts a short time. Sometimes it is necessary to see a doctor because of dehydration. Hepatitis A infection is much more severe.

Outbreak Snapshots

<table>
<thead>
<tr>
<th>Hepatitis A</th>
<th>Norovirus</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 2013, over 100 people in the Western U.S. became ill with hepatitis A infections after eating contaminated frozen berries (pomegranate seeds are likely the vehicle of contamination).</td>
<td>In 2012, over 11,000 children and teens in Germany were sickened by norovirus from contaminated frozen strawberries distributed to schools.</td>
</tr>
<tr>
<td>In early 2013, dozens were sickened in Europe over several months from frozen berries served in smoothies.</td>
<td>In 2009 norovirus outbreak in Europe caused by raspberries, over half of those affected were children younger than 7 years of age.</td>
</tr>
<tr>
<td>A 2012 outbreak of hepatitis A in Canada was also linked to a frozen mixed berry blend.</td>
<td>In 2005, contaminated raspberries sickened more than 1000 people in Denmark, including people in hospitals and nursing homes.</td>
</tr>
</tbody>
</table>

Hand Hygiene for Farm Management

Dirty hands can contaminate produce with viruses that cause human illnesses, like hepatitis A and norovirus. Farms need adequate toilet facilities and hygiene tools.

Prevention is Key

- Training: Educate workers about good hand hygiene practices and proper glove use. Teach control measures, why they are important, and what the consequences are if they are not used. Do not rely on alcohol-based hand sanitizers, they are not completely effective against foodborne viruses.

Norovirus (the “stomach flu”) causes nausea, vomiting, and diarrhea. Hepatitis A illness starts with flu-like symptoms but progresses to disease of the liver, leading to jaundice (yellowing of the skin & eyes) and sometimes other complications.

For both viruses, it is possible to be infected and not show symptoms; the sick person sheds viruses for a long time, and these viruses remain stable in the environment.

- On the Farm: Provide the facilities. Adequate toilet and handwashing facilities include soap, clean water, and paper towels. Trash bins should not be allowed to overflow (soiled paper or tissue can contaminate shoes).

Opportunity: Create a working environment and schedule that promotes appropriate hand washing practices.

Virus contamination of field worker hands is key target for our farms.

Preventing contamination is the best control... for proper handwashing, provide soap, clean water, and paper towels. ...these viruses can be transferred from hands to produce.
• Interactions with the Interstate Shellfish Sanitation Conference (ISSC)
  – Attended regional ISSC meetings
  – Service on the Harvester and Dealer Training Committee
• Update to IAFP Professional Development Groups
Don't Poo in the Blue...

Human sewage in the ocean can cause human illnesses.

What happens?

Norovirus: Norovirus causes nausea, vomiting, diarrhea, stomach pain, and sometimes fever. There are millions of cases each year in the U.S. alone, resulting in 1,000s of hospitalizations and 100s of deaths. It spreads through the fecal-oral route (poop-to-mouth), by way of food, water, objects, surfaces, and other people.

Your poop matters.

Just one person’s poop is enough to cause an outbreak.
- 1 gram of poop, **about the weight of a fish hook**, can contain millions of virus particles.
- It only takes 10-100 viruses to get sick.
- The waste from one person can contaminate an area about the size of 25 football fields.

Reduce the Risk

1) **Know the symptoms of norovirus and stay off the boat while ill.**
2) **Poo with care.** Use a toilet or container for poop and dispose of the contents at marina stations if possible.
3) **Disinfect all items that have contact with poop.** Use 1.5 cups of liquid chlorine bleach per gallon of water and let it sit for at least 5 minutes. Repeat disinfection then clean as normal.
4) **Wash hands with soap and water.** Do this often, especially after using the bathroom. Do not rely on hand sanitizers alone, they are not completely effective against norovirus.

Prevent Poo in the Blue

A Bulletin for Marinas

What happens...

Norovirus (the “stomach flu”), which causes nausea, vomiting, diarrhea, stomach pain, and sometimes fever. There are millions of cases each year in the U.S. alone, resulting in 1,000s of hospitalizations and 100s of deaths. It spreads through the fecal-oral route (poop-to-mouth), by way of food, water, objects, surfaces, and other people.

Your poop matters.

Just one person’s poop is enough to cause an outbreak.
- 1 gram of poop, **about the weight of a fish hook**, can contain millions of virus particles.
- It only takes 10-100 viruses to get sick.
- The waste from one person can contaminate an area about the size of 25 football fields.

Reduce the Risk

1) **Raise awareness.** Post information about these risks where boaters can see it.
2) **Provide functional facilities for boat waste disposal.**
3) **Post information about proper handwashing practices.**
   - Hands should be washed with soap and water, and dried with paper towels.
   - Hands should be washed often, especially after using the bathroom.
   - Do not rely on hand sanitizers alone, they are not completely effective against norovirus. Provide handwashing facilities.

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Don’t Barf off the Boat

Your Vomit Matters

Norovirus: the quick & dirty
Symptoms: nausea, vomiting, diarrhea, stomach pain, sometimes fever and headache

No symptoms does not mean no virus. You can still spread the virus after you recover.

One person’s vomit can contain billions of virus particles.

When you vomit in the ocean, the virus builds up in shellfish like oysters and clams; it can still cause infection when the oyster is eaten. Even if lightly cooked or steamed.

As few as ten particles can make you sick. Your vomit could infect 100s to 1000s of people.

Healthy people usually recover from norovirus in a few days. For children and the elderly, the illness can be severe.

But you have to puke somewhere.

Do it in...
a flushable toilet (lid down when you flush) or a container you can seal & throw out/disinfect with liquid bleach.

Clean it up...
with disposable paper towels and seal them in a plastic bag to throw out

use chlorinated bleach concentrated at 1.5 cups liquid bleach/1 gallon of water
let it sit for at least 5 minutes
repeat if possible, then clean as usual

Always wash your hands with soap and water, especially after using the bathroom or cleaning up vomit. Wash affected clothing and linens immediately.
Partnership with the Interstate Shellfish Sanitation Conference (ISSC)

- Convene expert stakeholder advisory panel (February 2014) -- ISSC, FDA, USDA, Sea Grant, and States.
- Focus of outreach and educational program should be **prevention** of fecal contamination events in close proximity to the shellfish growing waters.
- Collaborate to establish approach for disseminating information about viral- and other microbial-related risks to commercial fishermen and boaters.
1. Obtain **software** to “harvesting states” so can modify existing ISSC Harvester and Dealer Training Program templates and design training materials to meet the NSSP requirements.

2. Provide **technical support and assistance** to “harvesting states” so can design and update ISSC Harvester and Dealer Training Program templates with state-specific information.

3. Update **ISSC educational DVD** that focuses on overboard waste dumping and pump stations, by adding virus-related content for outreach to molluscan shellfish stakeholder groups.
4. Co-sponsor national conference hosted by ISSC to share information about viral illnesses associated with molluscan shellfish and novel alternate indicators to manage shellfish growing and harvest waters.

5. Survey “harvesting states” to assess how to disseminate educational information to recreational boaters about microbial contamination of molluscan shellfish growing and harvest waters.
SOCIAL MEDIA

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Social Media Activities

- **Twitter @benjaminchapman, @norocore**
  - 206 virus-related tweets to 1700 followers (an increase of 600 followers)
  - #citizenfoodsafty project Coverage in USA Today, Pittsburgh Post Gazette, Nation’s Restaurant News and Food Safety Magazines, 358 photos submitted

- **barfblog**
  - 88 virus-related posts in 2014 (24,600+ subscribers, 1321 total posts)
  - NoroCORE Facebook Page: 150 likes
  - barfblog Facebook page: 510 likes
Commonwealth Games athletes’ village outbreak report released

Posted on October 16, 2014 by Ben Chapman

In July over 80 staff and volunteers were hit with a touch of the norovirus prior to the Commonwealth Games (the Olympics, sort of, except the only nations invited are part of the British, uh, commonwealth). According to Herald Scotland, HS Greater Glasgow and Clyde released a report (unfortunately we can’t locate it to mine it for other gems) that states that the lack of (and inappropriate) cleaning and sanitization of a specific washroom was to blame – and so was using ineffective alcohol-based hand sanitizer instead of handwashing.

Now identified as the very common but debilitating norovirus, the bug was first reported on July 15. The Games opened on July 23.

The report said: “This outbreak did not have serious public health consequences. However, due to the timing of the outbreak, there was a risk to the success of the Games if the virus spread beyond the security staff and cases were reported among athletes and team officials.

“Because of the association with the Commonwealth Games there was immense media and political interest.”

The report reveals “deficiencies of cleaning” at the Athletes’ Village. It said: “Some areas of
• Survey mom bloggers, target audience for message magnification.
  – Assess information sources, credibility, knowledge and attitude towards NoV
  – Poster: Investigation of Norovirus-Related Knowledge and Attitudes of Online Moms/Mom Bloggers: An Online Survey

• Publication:

• Webinars on best practices to communicate food safety and NoV messages through social media -- December 2014 and January 2015 through IAFP new media task force.
Schools

- Reviewed documents available online for management of school-related outbreaks.
  - **Poster:** Evaluating the Evidence-Base of Outbreak Management and Clean-up Guidelines Available to Schools Experiencing Norovirus Outbreaks

- Analysis of the online reporting of school-related norovirus outbreaks
  - **Poster:** A Review of School-Linked Norovirus Outbreaks: Lessons Learned
Acknowledgements

- **Centers for Disease Control and Prevention**
  - Jan Vinje
  - Aron Hall
  - Leslie Barclay
  - David Lee
- **Rutgers University**
  - Don Schaffner
  - Hannah Bollinger
- **NC State University**
  - Ben Chapman
  - Chip Simmons
- **RTI International**
  - Jon Blitstein
  - Jenna Brophy
  - Sheri Cates
  - Kathy Kosa
  - Katherine Viator
- **Ohio State University**
  - Jianrong Li
  - Ben Yeap
  - Elbashir Araud