

Medical News

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William F. Vincent, Ph.D.
Senior Editor

We'd Like to Hear from You

The vast majority of feature articles that appear in our *Infectious Disease Update* come about because somebody asked for them.

Often at meetings or during informal conversations, somebody will say: "Why don't you write something about this particular subject?" Invariably, if it's important enough for one person to be interested in it, then there's an excellent chance that additional readers would like to hear about that subject.

Additionally, you might come across an article in a journal that you feel should be brought to the attention of other professionals. Just let us know the name of the journal, the volume, the month, and the page and we'll try to include it in a forthcoming issue.

To contact the Editor, just click [here](#).

Norovirus Infections – An Overview

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History

Following a gastroenteritis outbreak in a school in Norwalk, Ohio in 1968, this virus was isolated and given the name "Norwalk virus". With other outbreaks caused by similar strains, the name "Norwalk-Like viruses" also came into existence. In 2004, the name was changed to "Norovirus". The viruses, previously known as "Norwalk-like viruses" were designated as genotypes of Norovirus.

Another name for Norovirus infection that has been used for centuries is "winter diarrhea". There's probably a better than even chance that humans have been getting winter diarrhea since they started to crowd together in caves during the winter to stay warm. In 1945, long before the virus was first isolated, this writer was in first grade. The whole four-room little red school house came down with winter diarrhea in a matter of a couple of days. Within four or five days, we were all back to school.

Noroviruses are the most common cause of viral gastroenteritis in humans and affects persons of all ages.

In the past, Norovirus infections may have been confused with mild cases of dysentery especially in armies on the move where vast numbers of soldiers got sick.

All about This Publication

You may access *Infectious Disease Update* on our website by clicking [here](#).

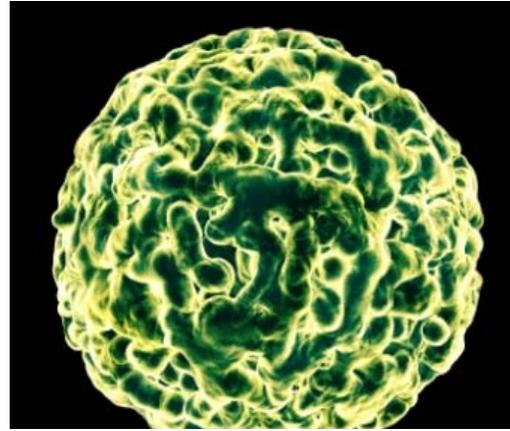
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Desert Shield virus
Southampton virus
Lordsdale virus

The Norovirus has **never** been grown in tissue culture. Anything and everything we know about them have been gleaned from studies of feline caliciviruses which can be grown in the laboratory. Feline caliciviruses cannot cause infections in humans.



Artist's rendition of the Norovirus
Courtesy of the University of Wales Health Board
United Kingdom

The fact that these viruses lack a lipid envelope is one of their most important features. Most viruses are inactivated by substances such as bleach, alcohol, quaternary ammonium chlorides ("quats"), due to the denaturation of the lipid envelope. In this case, there is **no** envelope to denature and hence this virus is **not** inactivated by these substances.

Transmission and Epidemiology

The Noroviruses are highly contagious and it has been estimated that as few as 100 viral particles can establish infection making it just about the most infectious virus on the planet. Some publications have stated that the minimum inoculum size may be as little as 10 particles.

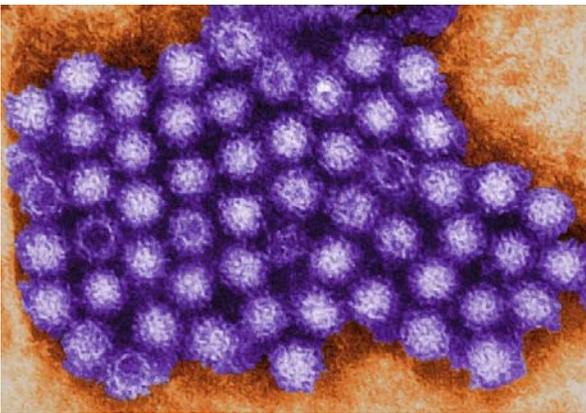
Given the fact that an infected person may well shed billions of viral particles in a single bowel movement, the rapid communicability of the Norovirus is quite understandable.

The most common means of transmission of Norovirus are as follows:

- Contaminated food (39 % of cases) – many of these cases are associated with cruise ships, usually as the result of food and water taken on in a foreign port,
- Hands (*i.e.* person-to-person contact) (12 %),
- Contaminated water (3 %),

The Virus

The Noroviruses belong to the family Caliciviridae (the "Caliciviruses"). These are small, structured viruses (SRSV) with no envelopes and a single strand of RNA. At present, there are at least four genogroups of Norovirus designated I through IV. In turn, these can be sub-divided into at least 20 to 25 strains or genetic clusters.



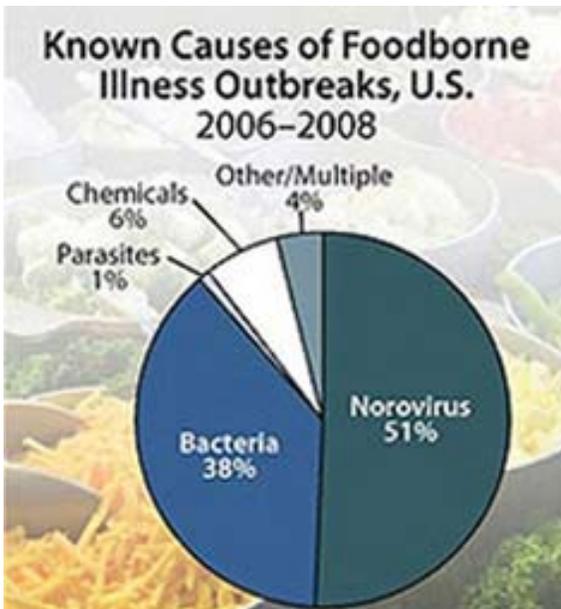
This transmission electron micrograph (TEM) reveals some of the ultrastructural morphology displayed by norovirus virions, or virus particles.

Courtesy of CDC

Before the present system of nomenclature was developed, the genotypes and strains were known by a wide variety of names including:

Norwalk virus
Hawaii virus
Snow Mountain virus
Mexico virus

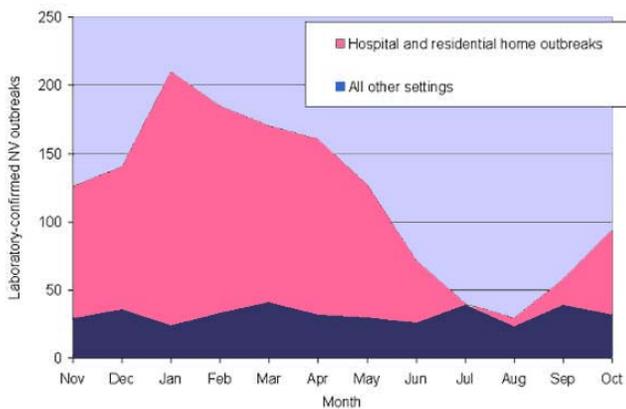
- Air (usually as a result of aerosolization of vomitus).
- Contact with contaminated surfaces,
- Transmission by unknown means (46 %).



Known causes of foodborne illness outbreaks in the U.S. Courtesy of CDC

The foods most-at-risk include uncooked shellfish (clams, mussels and oysters) and ready-to-eat foods that are handled but not re-cooked.

Most outbreaks in hotels, cruise ships and restaurants involve contaminated food. In the case of healthcare settings, such as long-term care facilities, contaminated food is usually **not** the culprit. In these cases, direct person-to-person contact probably plays a major role in transmission. Norovirus outbreaks in these settings as well as in schools are often referred to as “winter diarrhea” since the vast majority of cases are seasonal in incidence. See graph below.



The seasonality of Norovirus infections in various settings Courtesy of CDC

It was recently recognized that aerosolized vomitus may play an important role in transmission especially from the patient to a health-care provider. This is probably especially true in long-term care settings where a nurse or nursing assistant has to assist the patient in the bathroom. These lavatories aren't particularly large and it wouldn't take too much vomiting to produce a significant aerosol in the room and immediately outside the door. Some experts feel that this may represent a significant means of transmission in these settings.

Following infection and resolution of symptoms, the person may shed viable viral particles in their feces for a considerable period of time.

Day after Resolution	% Persons Shedding
1	78
2	45
15	35
22	26

Rocks, B. 2002. *Clinical Infectious Diseases* 35: 246-253.

Persons who have a compromised immune system or are receiving chemotherapy can shed the virus for months.

A study done in 2000 involved a restaurant with a prolonged outbreak of Norovirus infections. Using polymerase chain reaction (PCR) technology, the investigators were able to check for the presence of viral RNA throughout the restaurant. A summary of the result of this study are shown below.

Evidence of Widespread Contamination with Norovirus RNA in A Restaurant

Area	Number of Sites Tested	% Positive for Viral RNA
Carpets where vomiting known to have occurred	8	62
Carpets (no vomiting)	12	75
Toilet rims/seats	11	73
Toilet and sink handles	39	39
Horizontal surfaces below 1.5 meters	29	37
Horizontal surfaces above 2.5 meters	12	50
Phones, door handles	29	24
Soft furnishings (like sofas)	10	20
Total	144	42

Cheeseborough, J.S. et al. 2000. *Epidemiology and Infections* 125: 93-98.

Symptoms associated with Norovirus Infection

The symptoms associated with Norovirus infections are reasonably clear-cut and can often be used for an initial diagnosis. Known commonly as the Kaplan criteria, they are as follows:

- Short-lived infection with no complications usually (other than dehydration),
- Often occurs in winter months (especially in LTCFs, schools and prisons),
- Vomiting present in majority of cases,
- Average duration of illness can range from 12 hours to three to four days,
- Average incubation period is one to two days,
- Stool specimens are negative for other enteric pathogens (*e.g. Salmonella, Shigella, Campylobacter*, shiga toxin-producing *E. coli*),
- Most cases are associated with no fever or only a very low-grade one.

Kaplan, J.E. *et al.* 1982. *Annals of Internal Medicine* 96: 756-761.

Most cases of Norovirus infection probably are never diagnosed as such since the symptoms are mild and the individual does not need or seek medical attention.

Recently, the “**McGeer criteria**” (which have been commonly used to classify nosocomial infections in LTCFs since 1991) were updated to include classification criteria for Norovirus infections in these settings.

Surveillance for Norovirus Infections

Both criteria (one) and (two) **must** be present:

- 1) At least one of the following GI subcriteria:
 - a) Diarrhea: three or more liquid or watery stools above what is normal for the resident within a 24-hour period,
 - b) Vomiting: two or more episodes in a 24-hour period
- 2) A stool specimen in which Norovirus was detected by electron microscopy, enzyme immunoassay (EIA), or molecular diagnostics testing such as polymerase chain reaction (PCR). These tests will be discussed in more detail under the Diagnosis section.

In the **absence** of laboratory confirmation, an outbreak (two more cases occurring in a LTCF) may be assumed to be caused by Norovirus if the Kaplan criteria (previously discussed) are met.



A specimen collection container with no preservative in it must be used when collecting specimens for Norovirus testing

Laboratory Testing

At present, there are three tests available for diagnosing presence of Norovirus in stool specimens:

- Electron microscopy. This test is **incredibly expensive** and probably **never** should be ordered to make a diagnosis. It is basically a research level test,
- Enzyme immunoassay (EIA). This is a moderately priced test with relatively good diagnostic value. It is best used when three or more specimens are submitted to the laboratory. If one or two prove to be positive, the adage – “in for a penny, in for a pound” can be applied here. There is usually no reason to order more,
- Real-time polymerase chain reaction (RT-PCR). A very good test with excellent specificity and sensitivity. It can detect as little as 10 viral particles. It is, however, a little bit pricey.

It must be mentioned at this time that viral cultures are of **no** value in making the diagnosis of a Norovirus infection since this virus will **not** grow in tissue culture. Often, when dealing with an obvious outbreak of Norovirus infection in an institution, a local or state public health inspector will insist that viral cultures for norovirus be obtained. This would be a waste of time and money.

Norovirus, Stool, EIA

Preferred Specimen

Two grams stool, unpreserved in sterile container.
Minimum volume is one gram.

Transport

Transport in leak-proof container. Transport frozen.
Specimens transported at room temperature are unacceptable. Specimens can be refrigerated for 72 hours or frozen for 21 days.

Methodology

Immunoassay (EIA). Performing laboratory is Focus Diagnostics, Cypress, CA

Set-up Schedule

Set-up: Monday-Wednesday, Friday
Report available in 1 to 4 days

Reference Range

Negative

Treatment

There are no antiviral agents that can be administered for the treatment of Norovirus infections. In most cases, the only treatment required is dehydration therapy (usually by means of an oral hydration drink). In severe cases, especially in the debilitated elderly population, electrolyte replacement via IV therapy may be required.

As soon as the individual feels well enough to eat (usually two to three days), they can be started on a bland diet often referred to as the "BRAT" diet:

Bananas

Rice

Apple sauce

Toast (dry) or crackers

Spicy foods, fruits, alcohol, dairy products and coffee should be avoided completely for a week or more.

Infection Control Practices

One of the problems encountered when dealing with a norovirus outbreak is the fact that most of the commonly employed disinfectant products are usually **not** effective. The ones that come immediately to mind are the quaternary ammonium chlorides that are used extensively in healthcare settings. Additionally, alcohol-based hand sanitizers are **not** effective unless they remain in contact with the virus for **over** 10 minutes (which is virtually impossible).

Use of Bleach

Probably the **best** disinfectant that can be used in freshly diluted bleach. The bleach should be diluted

and used only for one day. Be careful that you are using real-honest-to-goodness bleach (*i.e.* sodium hypochlorite). If the bottle says "color safe" on the bottle, then the product definitely does **not** contain hypochlorite. If bleach is diluted today, then by tomorrow the solution will be mostly salt water with a hint of a bleach odor. Open bottles of concentrated bleach will lose effectiveness after 30 days. Change bottles of concentrated bleach every 30 days for accurate concentrations.

The concentration to which the bleach should be diluted is dependent to a large extent on the type of surface being disinfected. The following guidelines are usually recommended:

- 200 ppm (parts per million) – 1: 250 dilution
- Use for stainless steel, food/mouth contact items, toys
- One tablespoon of bleach in one gallon water
- 1,000 ppm – 1:50 dilution
- Use for non-porous surfaces, tile floors, counter-tops, sinks, toilets
- 1/3 cup bleach in one-gallon water
- 5,000 ppm – 1:10 dilution
- Use for porous surfaces, wooden floors
- 1.5 cups bleach in one-gallon water

When handling chlorine bleach, there are a number of significant health concerns including the following:

- Mixing Hazards – use only in well ventilated areas. Adverse effects of in appropriate mixtures of household cleaners usually are caused by prolonged exposure to an irritant gas in a poorly ventilated area. The most common inappropriate mixtures of cleaning agents are bleach with acids such a vinegar or ammonia (Windex®).
- Potential irritants released from such mixtures are chlorine gas, chloramines, and ammonia gas,
- Health Hazards. Chlorine bleach is corrosive and irritating to all mucosal tissue, skin, eyes and upper and lower respiratory tract. **Avoid** spray bottle application with any disinfectant. However, "pour" or "pump" bottles that do not produce aerosols are highly recommended,
- Personal Protective Equipment. Disposable gloves, masks, eye protection or face shields and gowns or protective clothing must be employed. Environmental cleaning using a more concentrated disinfectant will require heavier duty gloves than a simple non-sterile latex/vinyl glove.

The State of Michigan Departments of Community Health and Agriculture have an excellent monograph on Norovirus disinfection that can be accessed by clicking [here](#).

A number of other disinfectants, including some of the phenolic compounds and complex quaternary ammonium chlorides are also effective against this virus. The user should be careful, however. The manufacturer's literature should be evaluated very carefully when selecting an appropriate disinfectant product.

Lysol® and similar phenolic compounds are often effective if used at strength of 2- to 4-times higher than normally recommended. Glutaraldehyde disinfectants are also effective but these are relatively dangerous to use.

CDC and other agencies have recommended the following steps and procedures be implemented in order to reduce the chances of becoming infected with Norovirus:

- **Frequently** wash your hands especially after using the toilet and/or changing diapers and generally caring for incontinent patients,
- Wash your hands **thoroughly** before preparing and eating food,
- **Carefully** wash fruits and vegetables. Cook or steam seafood thoroughly before consuming,
- **Thoroughly** clean and disinfect contaminated surfaces immediately after an episode of diarrhea or vomiting using an effective disinfectant (such as bleach diluted to the appropriate concentration). Bear in mind in this case that aerosolized vomitus is considered to be a significant source of infection especially in the healthcare setting,
- Employees suffering from Norovirus infection (or a similar infection) should be kept **out** of the workplace until symptoms have subsided for at least three days (or longer). This is particularly true with food handlers and personnel providing direct patient care. If the truth be known, seven days would probably be more appropriate.

Persons who get a Norovirus infection do not appear to have any immunity against future infections as the virus constantly exhibits small mutations in its RNA.

As a result of this, attempts to produce an effective vaccine have been unsuccessful thus far. The estimated mutation rate (1.21×10^{-2} to 1.41×10^{-2} substitutions per site per year) is very high. It is not uncommon to see two distinct outbreaks during the year occur in the same facility.

Recommended References

Centers for Disease Control and Prevention. 2012. Norovirus. Click [here](#) to access website.

Cheeseborough, J.S. *et al.* 2000. Widespread environmental contamination with Norwalk-like viruses (NLV) detected in a prolonged hot outbreak of gastroenteritis. *Epidemiology and Infection* **125**: 93-98. Click [here](#) to access abstract.

Kaplan, J.E. *et al.* 1982. Epidemiology of Norwalk gastroenteritis and the role of nonbacterial gastroenteritis. *Annals of Internal Medicine* **96**: 756-761. Click [here](#) to access abstract.

Marks, P.J. *et al.* 2000. Evidence for the airborne transmission of Norwalk-like virus (NLV) in a hotel restaurant. *Epidemiology and Infection* **124**: 481-487. Click [here](#) to access abstract.

Mayo Clinic. 2011. Norovirus infection. Click [here](#) to access website.

Free CME/CEU credits

Assessing and improving health outcomes in patients with invasive fungal infections. Click [here](#) to access offering

New Treatments, New Challenges: Managing Side Effects of Treatment of Chronic HCV Infection. Click [here](#) to access offering.

Pediatric Bacterial Conjunctivitis: Differentiating Disease and Incorporating Optimal Treatment Plans into Practice. Click [here](#) to access offering.

***E. coli* infection no threat to the heart.** Click [here](#) to access offering.

Tdap vaccine shown safe in older patients. Click [here](#) to access offering.

Other Infectious Disease News

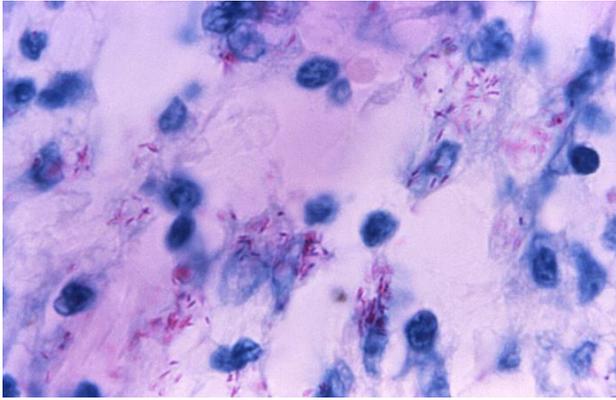
New Novel TB Drug approved by FDA

The last new novel TB drug approved by FDA was rifampin in 1970. With the emergence of drug-resistant TB, the development of newer and better drugs has become an imperative.

Janssen Products LP has developed a new drug called Bedaquiline. This drug works through the inhibition of a mycobacterial enzyme that is essential for the organism's growth. The drug will be approved as part of a combination drug therapy for pulmonary TB.

The Anti-Infective Drugs Advisory Committee agreed with the manufacturer that drug could be approved on the basis of phase 2 data.

While the TB rate has dropped dramatically in this county, only 54 % of the worldwide cases of MDR-TB are effectively treated



Acid-fast stain of *Mycobacterium tuberculosis* in a sputum specimen
Courtesy of CDC

There are a number of safety issues that still must be addressed.

FDA Anti-Infective Drugs Advisory Committee. 2012. Meeting of the Committee. Click [here](#) to access website.

Efficacy of Zoster Immunization diminishes with Time

The U.S. Department of Veterans Affairs set up a Study entitled "The Shingles Prevention Study" to determine the efficacy of Zoster Vaccine in preventing shingles in the short-term as well as the long-term

In this study, 7,320 persons received the actual vaccine while 6,950 received a placebo.

After four years of follow-up studies, the results were as follows:

- The incidence of postherpetic neuralgia was reduced by 66.5 %,
- The incidence of herpes zoster was reduced by 51 %.

Schmader, K.E. *et al.* 2012. Persistence of the efficacy of zoster vaccine in the shingles Prevention study and the short term persistence

substudy. *Clinical Infectious Diseases* **55**: 1320-1328. Click [here](#) to access abstract.

Is Influenza during Pregnancy linked to Autism?

In a recent study from Denmark published in the journal *Pediatrics* indicates that there may be a small chance that women who had influenza during

pregnancy may be a slighter higher risk of giving birth to a child with autism.

Having influenza during pregnancy is linked to a two-fold **increase** in a woman's chance of giving birth to a child diagnosed with an autism spectrum disorder before the age of three.

The researchers were quick to point out, however that approximately 98 % of the women in this study who had influenza (or fever) or took antibiotics did **not** give birth to children with autism.

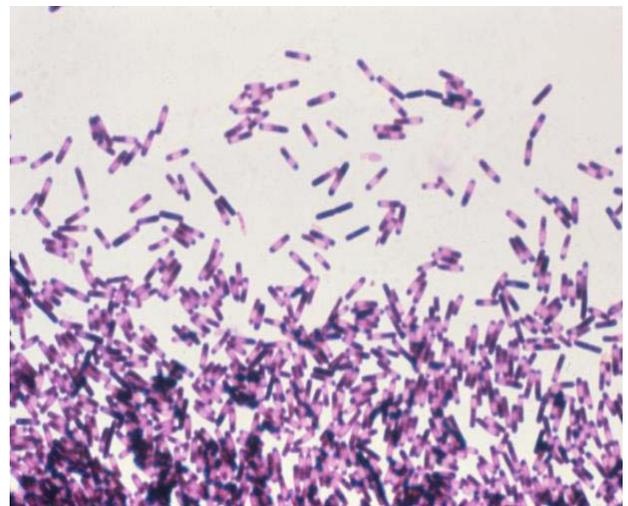
Researchers at the CDC's National Center on Birth Defects and Developmental Disabilities point out that it is still not clear if fetal exposure to influenza or an influenza-like illness plays any role (however small) to increasing the risk of an autistic child.

The bottom line is that pregnant women should pay special attention to getting their flu shots. Better to be safe than sorry.

Atadóttir, H.Ó. *et al.* 2012. Autism after infection, febrile episode and antibiotic use during pregnancy. *Pediatrics* **130**: e1441-e1446. Published on-line. Click [here](#) to access abstract.

Fecal Microbiota Transplantation used in Cases of Relapsing *Clostridium difficile* infection

Often when a patient develops a case of relapsing *C. difficile* infection, it usually is a matter of the normal intestinal flora **not** being restored. If the normal flora does not come back during the initial therapy (vancomycin, Flagyl®, *etc.*), the *C. difficile* spores just germinate and back come the symptoms again.



Gram stain of *Clostridium difficile*. The clear areas within the cells are the spores
Courtesy of CDC

One way around this problem has been to introduce normal intestinal flora back into the patient via a number of means such introduction to the lower GI tract.

A review from a number of treatment centers have indicated that cure rates in excess of 90 % are consistently being reported using this technique. This is considerably better than treatment with the presently available antimicrobial drugs.

This report summarizes the results that have been achieved in terms of donor selection, appropriate patient criteria and the various preparations available.

The biggest problem encountered when using these products is patient's acceptance. When you tell a patient that you are going to take a mixture of fecal bacteria and give it to them either as an oral drink or via an enema, they tend to get somewhat reluctant.

Rohike, F. *et al.* 2012. Fecal microbiota transplantation in relapsing *Clostridium difficile* infection. *Therapeutic Advances in Gastroenterology* **5**: 4-3-420. Click [here](#) to access entire article.

Contaminants in Topical Antiseptic Products

We supposedly use topical antiseptic products to **prevent** infections not to **transmit** them. According to a recent publication in the New England Journal of Medicine, that may not always be the case.

A number of outbreaks associated with these topical products have been reported to be a potential source of infection.

FDA is evaluating the issues surrounding this problem and is warning healthcare providers to be aware of the fact that these products could be contaminated and thus represent a risk of infection.

In the table on the next column is a list of infections, the bacterial agents associated with them and the products implicated.

Infections Associated with Contaminated Antiseptic Products

Product and Mechanism of Contamination	Clinical Outcome	Responsible Organisms*
Iodophor, including providone-iodine and poloxamer-iodine Intrinsic contamination Extrinsic contamination	Peritonitis, replacement of dialysis catheter, pseudo-bacteremia, and infection of catheter insertion site None reported	<i>Burkholderia cepacia</i> and <i>Pseudomonas aeruginosa</i> —
Alcohol product Intrinsic contamination Extrinsic contamination	Pseudobacteremia Bacteremia	<i>Bacillus cereus</i> <i>Burkholderia cepacia</i>
Chlorhexidine gluconate along or with cetrimide Intrinsic contamination Extrinsic contamination	None confirmed Death, bacteremia, removal of indwelling central venous catheter in patients with cancer, replacement of dialysis catheter, pseudobacteremia, wound infection, and colonization	— <i>Burkholderia cepacia</i> , <i>Achromobacter xylosoxidans</i> , <i>Ralstonia pickettii</i> , and <i>Serratia marcescens</i>
Quaternary ammonium compounds, including benzalkonium chloride and benzethonium chloride Intrinsic Contamination Extrinsic contamination	None confirmed Death, bacteremia, septic arthritis requiring prolonged antibiotic therapy (occasionally necessitating surgery), and injection-site infection	— <i>Burkholderia cepacia</i> and <i>Mycobacterium abscessus</i>

* Responsible organisms are listed only for those cases in which genetic-fingerprinting methods have confirmed the source of the contamination. Contamination of antiseptic drug products may occur either during manufacturing (intrinsic contamination) or during manipulations by the end-user (extrinsic contamination).

Data for this table taken from the publication cited below.

Chang, C.Y. and L.A. Furlong. 2012. Microbial Stowaways in Topical Antiseptic Products. *New England Journal of Medicine* **367**: 2170-2173. Click [here](#) to access complete article.

Are Probiotics of Any Use in Preventing Infections among Premature Infants?

Studies indicate that the use of probiotics will reduce the incidence of death due to necrotizing enterocolitis (NEC). Since many of the premature infants were also being treated with antibiotics, their use may well have confused the issue.

In a recent study carried out by Wake Forest School of Medicine researchers, outcomes with 750 premature babies were studied. Half of a 750 study population was given *Lactobacillus reuteri* while the other half received a placebo. The investigators chose *L. reuteri* since is found naturally in humans.

The rate of death was similar between the two groups but more study is needed because of the small numbers.

Rojas, M.A. *et al.* 2012. Prophylactic probiotics to prevent death and nosocomial infection in preterm infants. *Pediatrics* **130**: e1113-1120. E-published online before print. Click [here](#) to access abstract.

Infection Control Contact Precautions may have Other Unintended Consequences

If you were laying in a hospital bed with a sign stuck on the door warning visitors that you are on “contact precautions” or something to that effect, you would still expect that healthcare workers (HCWs) would treat you like any other patient in terms of how often they visited you. Correct? Sorry, it’s not true.

In a recent study conducted by the University of Maryland School of Medicine and the Veterans Affairs Maryland Health Care System, patients on contact precautions received significantly **fewer** visits from HCWs than did patients who were not on precautions: 2.78 HCW visits per hour as compared to 4:37 visits per hour. Not only were there less visits but the average length of visit went down from 16.98 minutes to 13.98 minutes.

During the periods of observation, there was also a drop in the number of outside visits to 18.9 % from 24.4 %.

One thing got better. When a patient was on contact precautions, HCWs were more likely to wash their hands when leaving the patient’s room but not when entering.

Morgan, D.P. *et al.* 2013. Effect of contact precautions on healthcare worker activity in acute care hospitals. *Infection Control and Hospital Epidemiology* **34**: 69-73 Click [here](#) to access a preview of the article.

New Coronavirus is Different from SARS

Several months ago, The World Health Organization reported on the emergence of a new coronavirus similar in many ways to the SARS virus which emerged in 2003-2004. At the time of the report, only five cases had been observed with two fatalities.

More is now known about this virus and it appears that

it has the potential to be considerably more dangerous than SARS.

First of all, recent studies indicate that this virus appears to utilize a receptor that is conserved between bats, pigs and humans. What this immediately suggests is that there might be a low barrier against cross-host transmission. That means that this virus which has been dubbed “hCoV-EMC” can infect a wide variety of mammalian cells.

Müller, M.A. *et al.* 2012. Human coronavirus EMC does not require the SARS-coronavirus receptor and maintains broad replicative capability in mammalian cell lines. *mBio* **3**: e00515-12. Click [here](#) to access complete article online.

World Health Organization (WHO). 2012. Revised interim case definition – novel coronavirus. Click [here](#) to access website.

Zaki, A.M. *et al.* 2012. Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia. *New England Journal of Medicine* **367**: 1814-1820. Click [here](#) to access abstract.

Ask The Experts

Triclosan – What is it and does it help

Question: Everywhere I look, I see bodywashes, toothpastes, *etc.* containing Triclosan. The label always says that substance is safe for external use. Can you tell me a little bit more about this substance.

Answer: According to FDA, this substance is not known to be hazardous to humans. Below is FDA’s *verbatim* statement on triclosan:

“What is triclosan?”

Triclosan is an ingredient added to many consumer products to reduce or prevent bacterial contamination. It may be found in products such as clothing, kitchenware, furniture and toys. It also may be added to antibacterial soaps and body washes, toothpastes, and some cosmetics—products regulated by the U.S. Food and Drug Administration (FDA).

What is known about the safety of triclosan?

Triclosan is **not** currently known to be hazardous to humans. But several scientific studies have come out since the last time FDA reviewed this ingredient that merit further review.

Animal studies have shown that triclosan alters hormone regulation. However, data showing effects in animals don’t always predict effects in humans. Other studies in bacteria have raised the possibility that triclosan contributes to making bacteria resistant to antibiotics.

In light of these studies, FDA is engaged in an ongoing scientific and regulatory review of this ingredient. FDA does not have sufficient safety evidence to recommend changing consumer use of products that contain triclosan at this time.

Does triclosan provide a benefit in consumer products?

For some consumer products, there is clear evidence that triclosan provides a benefit. In 1997, FDA reviewed extensive effectiveness data on triclosan in Colgate Total toothpaste. The evidence showed that triclosan in this product was effective in preventing gingivitis.

For other consumer products, FDA has not received evidence that the triclosan provides an extra benefit to health. At this time, the agency does not have evidence that triclosan in antibacterial soaps and body washes provides any benefit over washing with regular soap and water.

What consumers should know:

- Triclosan is ***not*** known to be hazardous to humans,
- FDA does not have sufficient safety evidence to recommend changing consumer use of products that contain triclosan at this time,
- In light of questions raised by recent animal studies of triclosan, FDA is reviewing all of the available evidence on this ingredient's safety in consumer products. FDA will communicate the findings of its review to the public in winter 2012,
- At this time, FDA does not have evidence that triclosan added to antibacterial soaps and body washes provides extra health benefits over soap and water. Consumers concerned about using hand and body soaps with triclosan should wash with regular soap and water,
- Consumers can check product labels to find out whether products contain triclosan.

How can I tell if there is triclosan in a product that I am using?

Antibacterial soaps and body washes, and toothpastes are considered over-the-counter drugs. If an over-the-counter drug contains triclosan, it will be listed as an ingredient on the label, in the Drug Facts box. If a cosmetic contains triclosan, it will be included in the ingredient list on the product label.

What is FDA doing to evaluate the safety of triclosan?

We are engaged in a comprehensive scientific and regulatory review of all the available safety and effectiveness data. This includes data relevant to the emerging safety issues of bacterial resistance and

endocrine disruption due to triclosan in FDA-regulated products.

We also have partnered with other Federal Agencies to study the effects of this substance on animal and environmental health. Updated Aug. 29, 2012.”

Food and Drug Administration. 2012. Triclosan: what consumers should know. Click [here](#) to access website.

Since humans lack the enzyme Enoyl-acyl carrier protein reductase, this substance was always considered to safe for humans. Despite the earlier statement from FDA, there is some doubt in this matter and studies are underway to clarify them.

In a recent Norwegian study, urine samples were collected from children. Those children with the highest concentration of triclosan in their urine had the highest sensitization to inhalant and seasonal allergies. The reason for this observation is not known.

Bertelsen, R.J. *et al* 2012. Triclosan exposure and allergic sensitization in Norwegian children. **Allergy** November 12th 2012 issue. E-published online ahead of print. Click [here](#) to access abstract.

New Test Offerings from Quest Diagnostics

BV Smear Nugent Score

Clinical Significance

Bacterial vaginosis in the symptomatic patient is defined as a shift in vaginal flora from predominantly lactobacilli to a variety of other morphologies.

Effective Date

3 March 2013

Specimen Requirements

Vaginal swab in Amies transport medium or similar transport media. An air-dried smear is also acceptable.

Transport Temperature and Stability

Room temperature: 48 hours

Refrigerated: 48 hours

Frozen: Unacceptable

Methodology

Gram-stained smears are examined microscopically using a scoring system based on the relative amounts of bacterial morphotypes present.

Echinococcus Antibody (IgG) EIA with reflex to Western Blot

Clinical Significance

Echinococcus IgG detection is an important tool for diagnosing hydatid disease since infected individuals do not exhibit of *E. granulosus* eggs.

Specimen Requirements

1 mL serum collected in a red-top tube (no gel)
(0.2 mL minimum)

Transport Temperature

Room temperature

Specimen Stability

Room temperature: 7 days

Refrigerated: 14 days

Frozen: 30 days

Set-up/Analytic Time

Set-up: Tuesday, Friday

Report Available: 1 – 5 days

Reference Range

Negative

Methodology

Immunoassay (EIA)

Performing Site

Focus Diagnostics, Inc.

Additional Information

If the *Echinococcus* (IgG) is "Positive", then the *Echinococcus* Ab (IgG), Western blood will be performed automatically at additional charge



Image depicts a sheep's liver extracted at this animal's necropsy, revealing the presence of numerous cysts in a case of hepatic echinococcosis due to the tapeworm, *Echinococcus granulosus*
Courtesy of CDC



An adult *Echinococcus granulosus* isolated from a dog. This tapeworm is actually only 2 to 6 mm in length.
Courtesy of CDC

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FROM THE EDITOR'S DESK

The Boston Light, Boston Harbor, Massachusetts

The "Boston Light is located on Little Brewster Island in outer Boston Harbor, Massachusetts. When the original light house was built in 1716, it was the first one in the United States. When the British withdrew from Boston in 1776, they completely destroyed the original structure.

The current lighthouse dates back to 1783 and is the second oldest working facility in the U.S. At present, it is the only lighthouse owned by the United States Coast Guard and staffed by the United States Coast Guard Auxiliary. It was designated a national landmark in 1963. The facility has a resident civilian keeper who is assisted by personnel from the U.S. Coast Auxiliary.

The light can be seen from a distance of 27 nautical miles. Although it is still an important navigational landmark, most of the large vessels coming into Boston use Boston's North Channel.

Boston Light located on Little Brewster Island, Boston
Picture courtesy of Wikipedia



Members of the U.S. Coast Guard Auxiliary at the lighthouse during their tour of duty



Little Brewster Island, the lighthouse keeper's cottage and the lighthouse on a cold, overcast day.



A patrol boat operated by the U.S. Coast Guard Auxiliary coming out to the lighthouse. The USCG Auxiliary is a civilian component of the Coast Guard and participates in all the missions that the active Coast Guard does except wartime activities and law enforcement. Members of the Auxiliary are trained to the same levels of competence as active members. Persons desiring more information should click [here](#).



Two members of the Coast Guard Auxiliary ponder whether the light bulb needs changing!



A birthday party at the lighthouse.

All pictures courtesy of Julie Mason, USCG AUX, unless otherwise noted

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