INFLUENZA & NOROVIRUS

PREVENTION TOOL KIT

CLOROX HEALTHCARE®

ABOUT THE CLOROX HEALTHCARE® INFLUENZA & NOROVIRUS PREVENTION TOOL KIT

Each year, respiratory and gastrointestinal outbreaks significantly impact healthcare facilities leading to increased cases of staff and patient illness, increased severity of illness including potential risk of influenza-related deaths and unexpected financial expenses. The two predominant outbreak culprits are seasonal influenza (flu) and norovirus. It is widely believed that influenza and norovirus outbreaks are more prevalent in winter months due to changes in environmental conditions and in human behavior.

The Clorox Healthcare® Influenza and Norovirus Prevention Tool Kit contains information and resources to help your facility prevent and manage outbreaks year-round and especially during influenza and norovirus season. This kit is meant to be used as an educational tool for both Infection Prevention and Environmental Services personnel to demonstrate the value associated with a well thought-out infection prevention and control plan.

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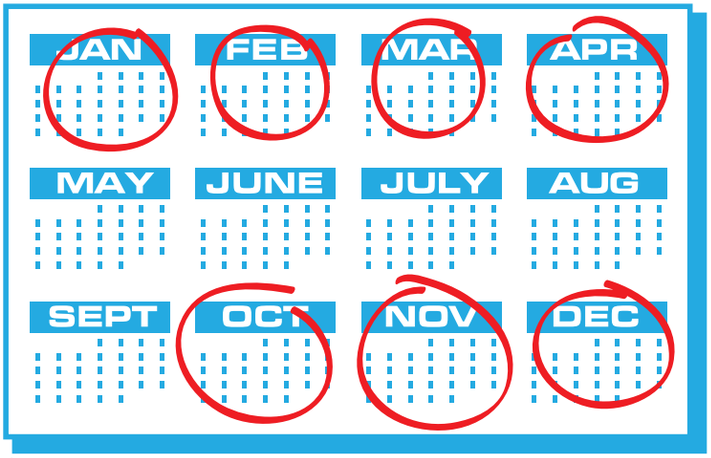
INFLUENZA & NOROVIRUS SEASON

Influenza and norovirus pose threats to healthcare facilities year-round, but these viruses often peak during the colder months in the United States, falling between October and April. According to the Centers for Disease Control and Prevention (CDC), 80% of norovirus outbreaks occur November to April[1] and records show that 47% of the time, influenza activity peaks in February.[2]

While there is little evidence to suggest why influenza and norovirus infections often peak in the winter months, many experts agree that the relative humidity is an influencing factor. A few studies show how influenza is more likely to spread at colder temperatures and lower humidity. In dry, cold conditions, the moisture is pulled from cough and sneeze droplets, allowing influenza to stabilize and linger in the air.[3, 4]



> Respiratory illnesses circulate constantly and some environmental conditions seem to promote the ability of the virus to survive on environmental surfaces. These same conditions may influence changes in the host that may favor infection. During times of the year when the virus is more stable, that is winter months, we also change behaviors in a way that can promote transmission. These behaviors may include gatherings, close contact, and increased indoor activities.

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INFLUENZA & NOROVIRUS: THE FACTS

Influenza is a contagious respiratory illness caused by influenza viruses. Human influenza A and B viruses are responsible for the seasonal epidemics of disease that occur almost every winter in the U.S.[5]

Approximately 5% to 20% of U.S. residents get influenza, and more than 200,000 people are hospitalized from seasonal flu-related complications each year.[6]

Influenza is unpredictable and its severity can vary widely from one season to the next. Influenza viruses cause mild to severe illness, but can cause serious complications that require hospitalization such as bacterial pneumonia, ear and sinus infections, dehydration, worsening of chronic medical conditions and potentially, death.[7]

Norovirus is a single-stranded RNA, nonenveloped virus that causes inflammation of the lining of the stomach and/or intestines, also known as acute gastroenteritis. Norovirus is the No. 1 cause of acute gastroenteritis in the U.S.[11]

Each year, norovirus causes an average of 800 deaths, 71,000 hospitalizations, 400,000 emergency department visits, 1.9 million outpatient visits, and 21 million total illnesses.[11]

Norovirus outbreaks are common among vulnerable populations. For hospitalized patients who are immunocompromised or have significant medical comorbidities, norovirus infection can result in prolonged hospital stays, additional medical complications and rarely, death.[12]

SYMPTOMS AND TRANSMISSION

Influenza Symptoms

Symptoms of influenza and the common cold are very similar, but more severe with influenza. Common symptoms include:

- Fever or feeling feverish/chills
- Cough
- Sore throat
- Runny or stuffy nose
- Muscle or body aches
- Headaches
- Fatigue
- Vomiting & diarrhea (more common in children)

The infection usually lasts for about a week and most people recover within one to two weeks without requiring medical treatment.[8]

Influenza Transmission

Influenza can spread from person to person through the air from up to six feet away, via the droplets formed from coughs or sneezes.

Influenza viruses can also spread when people touch infected surfaces such as door handles or countertops and then touch their own mouth or nose.[9]

Viruses can survive on hard surfaces (e.g., stainless steel, plastic) for up to 48 hours and on soft surfaces (e.g., cloth, fabric) for up to 12 hours.[10]

Infected persons can spread the infection to others before they even know they are sick. Most healthy adults can infect others beginning one day before symptoms develop and up to a week after becoming sick.

Norovirus Symptoms

According to the CDC, the most common symptoms of norovirus illness include:[13]

- Diarrhea
- Vomiting
- Nausea
- Stomach pain or cramps
- Other symptoms can include fever, headache and body aches

Symptoms typically last 24–72 hours and people usually recover completely without any serious long-term problems.

Norovirus Transmission

Norovirus is extremely contagious and can be introduced into a facility through ill patients, visitors or staff. During outbreaks, the virus primarily spreads through close person to person contact, contaminated food or water and contaminated surfaces, objects or substances.[14]

Norovirus spreads quickly. It only takes as few as 18 viral particles to infect another person and the virus can persist on environmental surfaces for weeks.[15, 16]

Not everyone who is exposed will get infected and not everyone who is infected will experience symptoms. It is important to remember that even if they do not appear sick, infected persons can still spread the virus to others.[15]

AT-RISK POPULATIONS

Certain people are more susceptible to contracting influenza and norovirus infections.

Severe outcomes and longer durations of illness are most likely to be reported in patients who are **immunocompromised** or have significant medical comorbidities.

Elderly populations are at increased risk of influenza and norovirus infection, compared with the general population, and infection-related complications are more common in adults 65 years and older.[7]

90% of norovirus-associated deaths in the U.S. occur in persons aged 65 years and older.[17]

90% of influenza-related deaths and more than 60% of influenza-related hospitalizations in the U.S. occur in persons aged 65 years and older.[18]

Pediatric populations are also at increased risk of influenza and norovirus infection. Complications related to these infections are most prevalent in children younger than five years old and especially those younger than two years old.[7]

Children younger than 5 have the most norovirus-associated healthcare visits.[11]

An estimated 20,000 children under the age of 5 are hospitalized for influenza complications.[7]

Influenza and norovirus-related complications are also prevalent among **pregnant women**.[7]

Healthcare workers are at increased risk of infection compared with the general adult population[19] which compounds the problem because caregivers can unknowingly spread contagious particles throughout the environment and transmit the virus to their patients.

AT-RISK FACILITIES

Long-term care facilities (LTCFs) are unique environments that offer additional challenges for infection prevention and control.

Between 1.6 and 3.8 million infections occur each year in U.S. LTCFs.[20] Cost containment efforts are resulting in shorter lengths of hospital stay for high-risk patients, who are now being discharged more quickly to LTCFs. Residents are often transferred between LTCFs and the hospital, increasing the opportunity for the transmission and acquisition of healthcare-associated infections.[21]

A 2012 study published in The Journal of the American Medical Association (JAMA) found that norovirus outbreaks were associated with significant concurrent increases in all-cause hospitalization and mortality in nursing homes.[18]

> Containing influenza or norovirus outbreaks can be difficult, especially in high-risk facilities. In one case study from 2010, a psychiatric ward suffered a norovirus outbreak that affected 25 patients and five healthcare workers. These patients were less likely to comply with infection prevention practices and report changes in their health status due to the nature of their illness. Thus, the number of norovirus cases did not decrease until a bundled approach to prevention was implemented including increased hand hygiene, increased frequency of cleaning and the disinfection of patient care items and environmental surfaces with a bleach-based agent.

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FINANCIAL BURDEN OF INFLUENZA

Seasonal influenza can have significant financial impacts for healthcare facilities.

Influenza Burden

According to the World Health Organization, influenza epidemics cost the U.S. economy $71 to $167 billion per year.[8]

Seasonal influenza is a costly disease to patients, employers, healthcare facilities and society. Results from a 2007 study indicated that seasonal influenza epidemics in the U.S. contributed to an estimated **3.1 million hospitalized days, 31.4 million outpatient visits and 44 million lost days of productivity**.[22] This makes programs to reduce the impact of influenza, particularly on older Americans, extremely important.

A closer look at the annual economic burden of influenza epidemics reveals the following influenza-associated medical expenses:[22]

- **$10.4 billion** in medical costs
  - **40%** of direct medical costs ($4.2 billion) spent treating patients aged 65+
  - **27%** spent treating patients aged 50–64
  - **18%** spent treating patients aged 18–49
  - **15%** ($1.7 billion) spent treating children
- **$16.3 billion** in lost earnings

A CDC study found that parents of influenza-stricken children faced medical expenses ranging **from under $300 to about $4,000 and missed between 11 and 73 hours of work.** Costs were greater for hospitalized children than for those who recovered at home.[23]

FINANCIAL BURDEN OF NOROVIRUS

Norovirus outbreaks are expensive and cause serious disruptions of patient care.

Norovirus Burden

According to the CDC, foodborne norovirus illness accounts for $2 billion in lost productivity and healthcare costs each year in the United States.[14]

In 2004, The Johns Hopkins Hospital experienced a nosocomial outbreak of norovirus that involved more than **500 patients and healthcare workers.**

When the outbreak was recognized, the hospital instituted disinfection and isolation protocols and symptomatic staff members were instructed to stay home. However, ongoing cases prompted more stringent measures, including the prohibition of visitors, cohorting of nursing staff, universal use of gowns and gloves in affected units and cessation of new admissions to the unit. Even group therapy sessions in the affected psychiatric unit were halted.

The norovirus outbreak cost an estimated $650,000 for the 946-bed hospital.[24]

In addition, a matched case study found that the financial burden of a norovirus outbreak to a facility was **$40,675**.[25] Increased expenses resulted from:

- Additional lab testing
- Infected workers
- Increased nursing care for infected patients
- Bed closures
- Infection control team expenses

Norovirus outbreaks also take a toll on healthcare workers, leading to increased absenteeism. According to a study in American Journal of Infection Control (AJIC), high levels of illness among staff result in closure of the affected ward, further increasing norovirus-associated expenses. A review of temporary unit closures in healthcare facilities found that **more than 44% of closures were directly attributed to norovirus outbreaks.**

WHAT CAN YOU DO?

Prepare and Protect Facilities with a Bundled Approach to Infection Prevention

Healthcare settings are particularly susceptible to outbreaks of influenza and norovirus because of the high levels of contact and vulnerable patient populations.

Preventing the transmission of highly infectious agents like influenza and norovirus in healthcare settings requires a multifaceted approach.

The CDC emphasizes the following measures to interrupt the transmission of influenza and norovirus in healthcare facilities:[33]

Vaccination

Influenza: Vaccination is the first and most important step in influenza prevention. The influenza vaccine protects against the three influenza viruses that research indicates will be most common during the season (e.g., influenza A (H1N1) virus, influenza A (H3N2) virus, influenza B virus).[7] Encourage healthcare workers to get vaccinated each year to help protect not only themselves, but also patients, visitors and colleagues.

Norovirus: There is currently no vaccine available for norovirus and generally, no specific medical treatment is offered for norovirus infection apart from oral or intravenous repletion of fluids.[34]

Isolation Precautions[34]

For Patients:

- Place patients on Contact Precautions if they have symptoms consistent with influenza or norovirus gastroenteritis.
- Minimize patient movement within a ward or unit to reduce the likelihood of norovirus environmental contamination and transmission in unaffected clinical areas during norovirus outbreaks.
- Consider the closure of wards to new admissions or patient transfers in the event of a severe and prolonged outbreak.

For Staff:

- Establish protocols for staff cohorting.
- Ill personnel should stay home for a minimum of 48 hours after the resolution of symptoms.

For Visitors:

- Restrict nonessential visitors from affected areas of the facility during outbreaks of influenza or norovirus.

Hand Hygiene[34]

- Actively promote adherence to hand hygiene among healthcare personnel, patients and visitors in patient care areas affected by seasonal outbreaks of influenza or norovirus.
- Healthcare professionals should always wash their hands when performing the following activities:
  - Before and after all patient contact
  - After contact with potentially infectious materials (e.g., blood, bodily fluids, contaminated surfaces)
  - Before donning, and after removing, sterile gloves, gowns or face shields
  - Before touching the eyes, nose or mouth and after blowing your nose, coughing or sneezing
  - Before preparing food or eating
  - After going to the bathroom

Personal Protective Equipment[34]

- During outbreaks, adherence to Personal Protective Equipment (PPE) use according to Contact and Standard Precautions (i.e., gowns and gloves upon entry) is recommended for individuals entering the patient care area.
- Use eye protection or a full face shield if there is an anticipated risk of splashes to the face during the care of patients, particularly among those who are vomiting.

Environmental Cleaning and Surface Disinfection[34]

To help prevent the spread of influenza and norovirus pathogens in healthcare environments, implement the following environmental surface cleaning and disinfecting protocol regularly.

- Clean visibly soiled surfaces with a detergent prior to disinfection with bleach or another U.S. Environmental Protection Agency (EPA) registered disinfectant that is approved to kill influenza and norovirus.
- Always adhere to the manufacturer's instructions for dilution (if necessary), application and contact time.
- Apply an EPA-registered disinfectant to the surface and ensure the surface remains wet for the duration of the manufacturer-recommended contact time.

PREVENTION IS KEY TO REDUCING THE FINANCIAL BURDEN OF INFLUENZA & NOROVIRUS

Influenza and norovirus are highly contagious, so the financial burden of an outbreak increases rapidly based on the number of infected patients and staff members. This makes prevention efforts imperative to mitigate the spread of infections and curb rising costs.

Prevention: Vaccination

The estimated potential benefits of infection control interventions for healthcare-associated infections range from $5.7 to $31.5 billion.[27]

Prevention efforts such as influenza vaccination are proven to reduce both direct medical costs and indirect costs from absenteeism.

When adults under age 65 are vaccinated, studies have shown a:[28]

- **13%–44%** reduction of healthcare provider visits
- **18%–45%** decrease in lost workdays
- **25%** decrease in antibiotic use

A recent influenza vaccination cost-benefit model demonstrated that universal immunization of a sample population was cost effective from a payer, member and societal perspective with the total expected net savings to all stakeholders at an estimated **$207 per vaccination.[29]**

Vaccinations are especially important for healthcare workers, as they are at higher risk for influenza infections. Yet, only about 50% of healthcare personnel receive vaccines. Making sure healthcare personnel receive annual influenza vaccinations helps protect staff and patients, and reduce the disease burden and healthcare costs associated with influenza. Benefits of healthcare personnel vaccination include:[30]

- **Reductions in healthcare worker illness and absenteeism:** Vaccinated healthcare workers report 30% fewer influenza-like illnesses and use 30–50% fewer sick days.
- **Improved patient outcomes:** Residents in nursing homes with high healthcare worker vaccination levels have greater than 40% reduction in overall mortality.
- **Cost savings:** One study examined the benefits of vaccination (sick time avoided) compared with costs (materials, nursing staff time, employee time during vaccination, and time lost due to adverse reactions) and found a net benefit of $39.23 per vaccinated healthcare employee.[31]

Prevention: Hand Hygiene & Surface Disinfection

A recent study found increased hand hygiene and surface disinfection protocols greatly reduced the financial burden norovirus has on a facility:[32]

Increasing surface disinfection following the detection of a single case of norovirus was found to offset costs by as much as: **$40,040**

When five cases of norovirus were detected, cost reduction increased to as much as $99,363.

Increasing hand hygiene after the detection of a single case of norovirus was found to offset costs by up to: **$21,394**

Implementing similar procedures following the detection of five norovirus cases reduced costs by upwards of $104,273.

> Both influenza and norovirus circulate in the community during winter months. Annual seasonal influenza epidemics have an enormous impact on the U.S. population and regional outbreaks of norovirus can also exact a significant toll. Both influenza and norovirus can present significant challenges to hospitals in terms of handling and treating the surge of infected patients and the potential for nosocomial outbreaks of disease. Facilities can incur increased costs during outbreaks including expenses related to isolation precautions, supplemental environmental cleaning, personal protective equipment and increased sick time and staffing shortfalls. These costs can be offset by preventive influenza vaccinations, advanced planning and having well thought-out institutional control programs that can be rapidly deployed when the need arises.

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for Research at Montefiore Medical Center

SURFACE DISINFECTION BEST PRACTICES

- Clean visibly soiled surfaces with a detergent prior to disinfection with bleach or another U.S. Environmental Protection Agency (EPA) registered disinfectant that is approved to kill influenza and norovirus.

- Always adhere to the manufacturer's instructions for dilution (if necessary), application and contact time.

- Apply an EPA-registered disinfectant to the surface and ensure the surface remains wet for the duration of the manufacturer-recommended contact time.

TIP Consider using ready-to-use EPA-registered disinfecting wipes to minimize the reuse of cloths that can aid in disease transmission.[37]

TIP Check the label: You may be surprised to find that while many disinfectants are registered to kill influenza, they often will not be registered to kill norovirus.

Additional Steps:[34]

- Perform routine cleaning and disinfection of frequently touched environmental surfaces and equipment such as toilets, faucets, hand/bed rails, telephones, door handles, computer equipment and kitchen preparation surfaces.
- Increase the frequency of cleaning and disinfection during outbreaks.

TIP During norovirus outbreaks, frequently touched surfaces should be cleaned and disinfected three times daily.[38]

- Always clean and disinfect reusable equipment such as stethoscopes between each patient use.
- Use Standard Precautions for handling soiled patient-service items or linens, including the use of appropriate PPE (e.g., gloves and gowns) to minimize the likelihood of cross-contamination.

TIP Handle soiled linens carefully to avoid dispersal of norovirus particles.

- Launder privacy curtains regularly according to your facility's protocol (e.g., when visibly soiled, patient discharge/transfer). Also consider use of an appropriate EPA-registered product to kill microorganisms on soft surfaces between launderings.
- Monitor and review the above practices regularly to ensure staff compliance.

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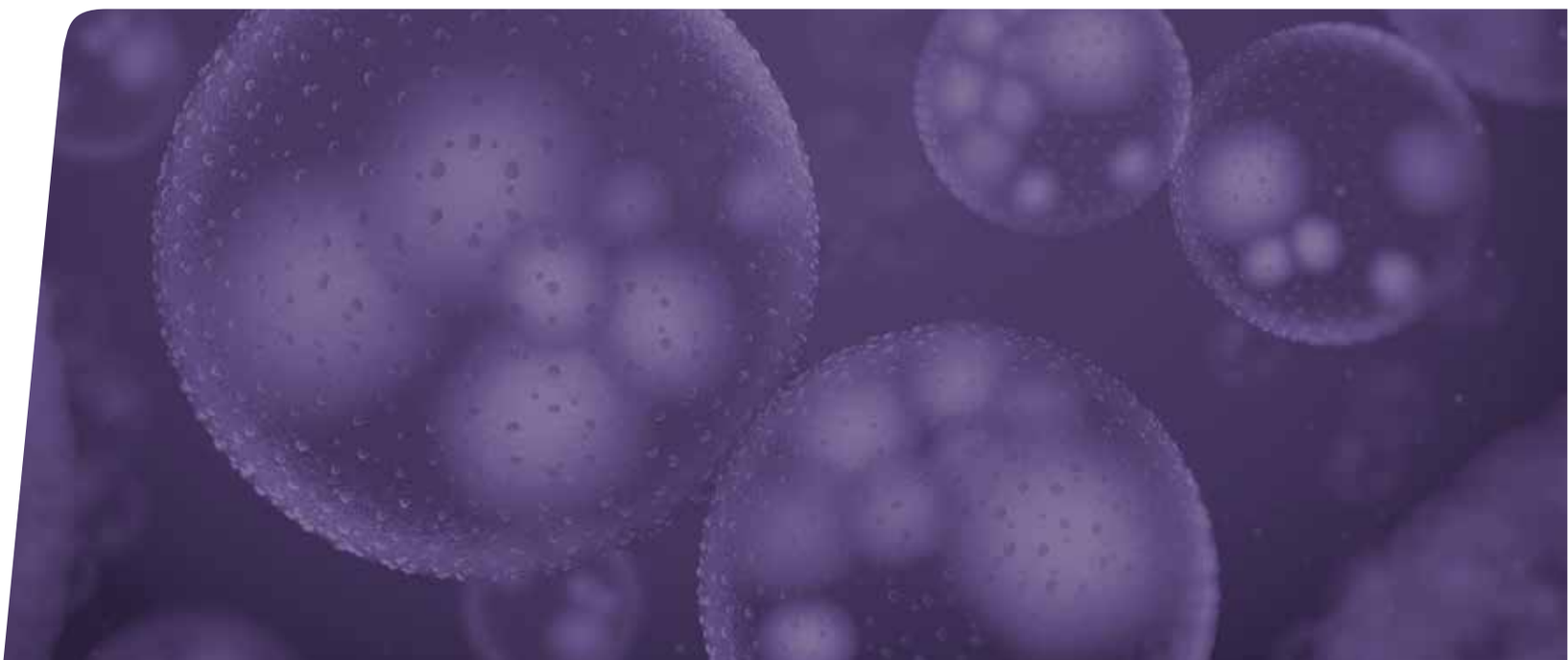


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Preventing Influenza & Norovirus: HAND HYGIENE TIPS

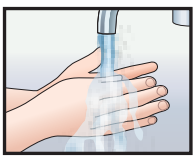
Always wash hands before contact with potentially infectious materials or surfaces, donning gloves and PPE, preparing food, eating, touching mouth or face and after going to the bathroom.

How to Wash Your Hands:

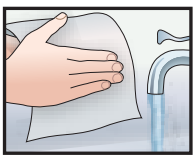
1. **Wet your hands** with clean, running water (warm or cold) and apply soap.

2. **Rub your hands** together to make a lather and scrub them well.

3. **Continue rubbing** your hands for at least 20 seconds. (As long as it takes to sing "Happy Birthday" twice.)



4. **Rinse your hands** well under running water.



5. **Dry your hands** using a clean towel or air dry them.

TIP

Make sure you clean all surfaces of your hands: fingertips, cuticles and nail beds, underneath the fingernails, between fingers, knuckles, wrists and any furrow or wrinkles in the skin.

Source: CDC Features: Wash your Hands. Centers for Disease Control and Prevention, 25 Mar. 2013. Date accessed: 5 Sept. 2013. Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. MMWR 2002;51(No. RR-16).

Preventing Influenza & Norovirus: ENVIRONMENTAL CLEANING CHECKLIST

Thoroughly clean and disinfect these frequently-touched surfaces in patients' rooms and bathrooms with bleach or another EPA-registered disinfectant with influenza and norovirus kill claims:

- ☐ Door knobs/handles and surfaces
- ☐ Bed rails
- ☐ Mattress
- ☐ Call button
- ☐ Phone
- ☐ Overbed table & drawer
- ☐ Countertop
- ☐ Light switches
- ☐ Furniture (ensure product compatibility with surfaces)
- ☐ Chair arms & seats
- ☐ Window sills
- ☐ Bedside commode
- ☐ Medical equipment (e.g., IV controls)
- ☐ Mirror
- ☐ Sink and faucet
- ☐ Tub/shower
- ☐ Bathroom handrails
- ☐ Toilet surface, seat & handle

Source: Guide to the Elimination of *Clostridium difficile* in Healthcare Settings. Association for Professionals in Infection Control and Epidemiology (APIC), 2008.

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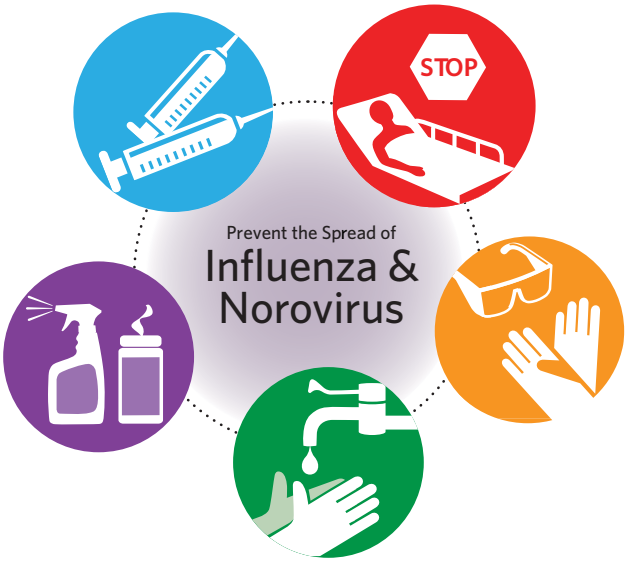
Preventing Influenza & Norovirus:
BUNDLED PROTOCOL FOR INFECTION PREVENTION IN HEALTHCARE SETTINGS

A bundle is a structured way of improving the processes of care and patient outcomes: a small, straightforward set of evidence-based practices — generally three to five — that, when performed collectively and reliably, have been proven to improve patient outcomes.[1] The U.S. Centers for Disease Control and Prevention emphasize the following bundled infection control measures to interrupt the transmission of influenza and norovirus in healthcare facilities:[2,3]



Vaccination

- While there is currently no vaccine available for norovirus, **vaccination is the first and most important step in influenza prevention.**

Isolation Precautions

- **Place patients on Contact Precautions** if they have symptoms consistent with influenza or norovirus gastroenteritis.

Influenza Tip: *Droplet precautions should be implemented for patients with suspected or confirmed influenza for 7 days after illness onset or until 24 hours after the resolution of symptoms.*[4]

Norovirus Tip: *During norovirus outbreaks, minimize patient movement within a ward or unit to reduce the likelihood of norovirus environmental contamination and transmission in unaffected clinical areas.*

- **Establish protocols for staff cohorting** in the event of an influenza or norovirus outbreak. Ill personnel should stay home for a minimum of 48 hours after the resolution of influenza/norovirus symptoms.
- **Restrict non-essential visitors** from affected areas during outbreaks.

Personal Protective Equipment

- **Utilize Personal Protective Equipment (PPE) during outbreaks** according to Contact and Standard Precautions (i.e., gowns and gloves upon entry).

TIP *Use eye protection or a full face shield if there is an anticipated risk of splashes.*

Hand Hygiene

- **Actively promote adherence to hand hygiene** among healthcare personnel, patients, and visitors in patient care areas affected by seasonal outbreaks of influenza or norovirus.

Environmental Cleaning and Surface Disinfection

- **Clean visibly soiled surfaces** with a detergent prior to disinfection with a product that is EPA-registered to kill influenza and norovirus and is intended for use in healthcare settings.
- **Always adhere to the manufacturer's instructions** for dilution (if necessary), application, and contact time.

TIP *Ensure that the surface remains wet for the duration of the manufacturer-recommended contact time.*

- **During norovirus outbreaks, increase the frequency of cleaning and disinfection.** Frequently touched surfaces should be cleaned and disinfected 3 times daily during outbreaks.[5]
- **Standard cleaning and disinfection procedures** (e.g., using cleaners and water to preclean surfaces prior to applying disinfectants to frequently touched surfaces or objects for indicated contact times) are adequate for influenza virus environmental control in all settings within the healthcare facility, including those patient-care areas in which aerosol-generating procedures are performed.[4]
- **Use Standard Precautions for handling soiled patient-service items or linens,** including the use of appropriate PPE, to minimize the likelihood of cross-contamination.

Norovirus Tip: *Handle soiled linens carefully to avoid dispersal of viral particles.*

- **Launder privacy curtains regularly according to your facility's protocol** (e.g., when visibly soiled, patient discharge/transfer). Also consider use of an appropriate EPA-registered product to kill microorganisms on soft surfaces between launderings.

1. Evidence-Based Care Bundles. The **Institute** for Healthcare Improvement. Date accessed: 3 Sept. 2013.
2. Key Infection Control Recommendations for the Control of Norovirus Outbreaks in Healthcare Settings. Centers for Disease Control and Prevention. Date accessed: 3 Sept. 2013.
3. Hall, A., Vinje, J., Lopman, B.A., Park, G.W., Yen, C. "Updated Norovirus Outbreak Management and Disease Prevention Guidelines." Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report. 60.3 (2011): 9-11.
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5. MacCannell, T., Umscheid, C.A., Agarwal, R.K., Lee, I., Kuntz, G., Stevenson, K.B., and the Healthcare Infection Control Practices Advisory Committee (HICPAC). "Guideline for the Prevention and Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings." Centers for Disease Control and Prevention. Date accessed: 4 Sept. 2013.

NI-22164

ENVIRONMENTAL CLEANING CHECKLIST FOR INFLUENZA AND NOROVIRUS

Hospital: _____ Unit: _____

Date: _____ Room: _____

Time: _____

FOR DAILY ROOM CLEANING & DISINFECTION

INSTRUCTION	COMPONENT	YES	NO	N/A
Perform hand hygiene.	N/A			
Put on PPE.	N/A			
Remove Trash	Pick up loose trash			
	Empty trash and replace liner			
	Wipe all surfaces of waste container with EPA-registered product			
Remove all soiled linen.	N/A			
Damp dust:	Overhead light (if the bed is empty)			
	TV & stand			
	Curtain rods			
	Tops of doors			
Clean:	Lights			
Disinfect with bleach or or another EPA-registered disinfectant with influenza and norovirus claims:	Door knobs/handles			
	Door surface			
	Bed rails			
	Mattress			
	Call button			
	Phone			
	Overbed table & drawer			
	Countertop			
	Light switches			
	Furniture (ensure product compatibility with surfaces)			
	Arms of patient chair			
	Seat of patient chair			
	All other miscellaneous horizontal surfaces			
	Window sills			
	Bedside commode			
	Medical equipment (e.g., IV controls)			
Remove gloves, perform hand hygiene and change gloves.	N/A			
Disinfect with bleach or another EPA-registered disinfectant with influenza and norovirus claims:	Spot clean walls with disinfectant cloth			
	BATHROOM, including:			
	Bathroom door knob			
	Toilet horizontal surface/seat			
	Toilet lever/flush			
	Faucets (at sink)			
	Bathroom handrails			
	Sink			
	Tub/shower			
	Mirror			
Remove gloves, perform hand hygiene and change gloves.	N/A			
Replace as needed:	Hand sanitizer			
	Paper towels			
	Bath items			
	Soiled curtains			
Begin at far corner of patient room and clean floor:	Dust mop tile			
	Wet mop tile			
For terminal cleaning, damp dust:	Bed frame			
	Mattress			
	Remake bed with clean linen			
	Replace as needed: Pillows, mattresses, pillow covers, mattress			
Discard dust cloths.	N/A			
Change mop heads after each isolation room.	N/A			
Remove PPE before exit.	N/A			
Perform hand hygiene.	N/A			

In addition to the surfaces listed above, be sure to clean all surfaces in the room since pathogens can live anywhere.

Sign-off by Environmental Services employee cleaning the room: _____ Sign-off by Environmental Services Supervisor: _____

"Guide to the Elimination of Clostridium difficile in Healthcare Settings." Association for Professionals in Infection Control and Epidemiology (APIC). (2008).
"Practice Guidance for Healthcare Environmental Cleaning." Association for the Healthcare Environment (AHE). Second edition.

NI-22165

Preventing Influenza & Norovirus:

ENVIRONMENTAL SURFACE DISINFECTION PROTOCOLS

To help prevent the spread of influenza and norovirus in healthcare environments, implement the following environmental surface cleaning and disinfecting protocol regularly.

SURFACE DISINFECTION BEST PRACTICES

- Clean visibly soiled surfaces with a detergent prior to disinfection with bleach or another EPA-registered disinfectant with influenza and norovirus claims.
- Always adhere to the manufacturer's instructions for dilution (if necessary), application and contact time.
- Apply an EPA-registered disinfectant to the surface and ensure the surface remains wet for the duration of the manufacturer-recommended contact time.

TIP *Consider using ready-to-use EPA-registered disinfecting wipes to minimize the reuse of cloths that can aid in disease transmission.*[1]

DISINFECTION PROTOCOLS FOR PREVENTION

The Centers for Disease Control and Prevention (CDC) emphasizes the following measures to interrupt the transmission of influenza and norovirus in healthcare facilities:[2]

- **Perform routine cleaning and disinfection** of frequently touched environmental surfaces and equipment such as:

Toilets | Faucets | Hand/Bed rails | Telephones | Door handles | Computer equipment

as well as kitchen preparation surfaces. Use a checklist when possible to ensure all surfaces are covered.

- **Increase the frequency of cleaning and disinfection** during outbreaks. Frequently touched surfaces and patient items should be cleaned and disinfected three times daily.

- **Use Standard Precautions** for handling soiled patient-service items or linens, including the use of appropriate PPE (e.g., gloves and gowns) to minimize the likelihood of cross-contamination.

TIP *Handle soiled linens carefully to avoid dispersal of norovirus particles.*

- Change privacy curtains when they are visibly soiled and when the patient is discharged or transferred.
- Regularly monitor and review the above practices to ensure staff compliance.

FAST FACTS:

Norovirus has a very short incubation period, but can persist on environmental surfaces for weeks.[4] Environmental surfaces potentially contaminated with norovirus should be disinfected with bleach or another EPA-registered disinfectant with a norovirus claim.

Influenza virus can be transferred from contaminated surfaces to hands for up to 24 hours after the surface was inoculated.[5] To kill influenza, always remove visible soil from surfaces, followed by targeted disinfecting.

TIP ***Always read the product label to ensure that it is EPA-registered to kill influenza and norovirus.***

1. Rutala, W.A., Weber, D.J., Healthcare Infection Control Practices Advisory Committee (HICPAC). Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008. Retrieved from: http://www.cdc.gov/hicpac/pdf/guidelines/Disinfection_Nov_2008.pdf
2. CDC Morbidity and Mortality Weekly Report. Updated Norovirus Outbreak Management and Disease Prevention Guidelines. Retrieved from: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6003a1.htm
3. Ohl, M., et al. (2011). Hospital privacy curtains are frequently and rapidly contaminated with potentially pathogenic bacteria. Am J Infect Control. 2012 Dec; 40(10):904-6.
4. "Norovirus Illness: Key Facts." The Centers for Disease Control and Prevention. N.p., 10 Sept. 2010. Web. 2 Aug. 2013. Retrieved from: http://www.cdc.gov/norovirus/downloads/keyfacts.pdf
5. J. Barker, D. Stevens and S.F. Bloom, "A REVIEW Spread and prevention of some common viral infections in community facilities and domestic homes", Journal of Applied Microbiology 2001, 91, 7-21.March 2011. Retrieved from: http://www.cdc.gov/mmwr preview/mmwrhtml/rr6003a1.htm?s_cid=rr6003a1_w.

NI-22166

Preventing Influenza & Norovirus:

FINANCIAL BURDEN BY THE NUMBERS

THE FINANCIAL BURDEN OF INFLUENZA AND NOROVIRUS

Seasonal influenza and norovirus outbreaks can have a significant financial impact on healthcare facilities and significantly disrupt patient care.

$ By the numbers:

$71 - $167 billion

The total influenza epidemics cost the U.S. economy each year[1]

$26.8 billion

The total influenza-associated medical expenses plus lost earnings from lost productivity[2]

$650,000

The amount a norovirus outbreak, that affected more than 500 patients and healthcare workers, cost a 946-bed facility in 2004[3]

$65,190

The financial burden of a norovirus outbreak on a facility, according to a matched case study[4]

PREVENTION: REDUCING THE FINANCIAL BURDEN

Prevention is the key to reducing the burden of influenza and norovirus. The estimated potential benefits of infection control interventions for healthcare-associated infections range from

$5.7 - $31.5 billion[5]

Examples of interventions include:

Increasing surface disinfection to help curb the spread of viruses following the detection of a single case of norovirus was found to offset costs by as much as **$40,040[6]**

When 5 cases of norovirus were detected, cost reduction increased to as much as **$99,363[6]**

Increasing hand hygiene after the detection of a single case of norovirus was found to offset costs by up to **$21,394[6]**

Implementing similar procedures following the detection of 5 norovirus cases reduced costs by upwards of **$104,273[6]**

Increasing influenza vaccinations for healthcare workers lead to a net benefit of **$39.23** per vaccinated healthcare employee[7]

Vaccinated healthcare workers report **30% fewer influenza-like illnesses** and use **30-50% fewer sick days[8]**

1. Influenza. World Health Organization, Mar. 2003. Date accessed: 12 Aug. 2013.
2. Molinari, N.M., Ortega-Sanchez, I.R., Messonnier, M.L., Thompson, W.W., Wortley, P.M., Weintraub, E., Bridges, C.B. "The Annual Impact of Seasonal Influenza in the US: Measuring Disease Burden and Costs." Vaccine. 25.27 (2007): 5086-5096.
3. Johnston, C.P., Green, K.Y., Qiu, H., Perl, T.M., Cosgrove, S.E., Kaminsky, M., Lowenstein, C.J., Stokes, A.B., Lawson, P., Rosenbaum, P., Dickson, C., Ticehurst, J.R. "Outbreak Management and Implications of a Nosocomial Norovirus Outbreak." Clinical Infectious Diseases. 45.5 (2007): 534-540.
4. Zingg, W., Colombo, C., Jucker, T., Bossart, W., Ruef, C. "Impact of an Outbreak of Norovirus Infection on Hospital Resources." Infection Control and Hospital Epidemiology. 26.3 (2005): 263-267.
5. Scott, D.R. The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. Division of Healthcare Quality Promotion National Center for Preparedness, Detection, and Control of Infectious Diseases Coordinating Center for Infectious Diseases Centers for Disease Control and Prevention, March 2009. Date accessed: 4 Sept. 2013.
6. Lee, B., Wettstein, Z.S., McGlone, S.M., Bailey, R.R., Umscheid, C.A., Smith, K.J., Muder, R.R. "Economic value of norovirus outbreak control measures in healthcare settings." Clinical Microbiology and Infection. 17.4 (2010): 640-646.
7. Yassi, A., Kettner, J., Hammond, G., Cheang, M., McGill, M. "Effectiveness and cost-benefit of an influenza vaccination program for health care workers." Clinical Infectious Diseases. 2.3 (1991): 101-108.
8. Health Care Personnel/Hospital Influenza Immunization Toolkit. New York State Department of Health, February 2013. Date accessed: 12 Aug. 2013.

NI-22167

Preventing Influenza & Norovirus:

HAND HYGIENE AND PPE PROTOCOLS

When influenza and norovirus are circulating in the healthcare environment, healthcare professionals should take extra care to follow these standard precautions for hand hygiene and personal protective equipment (PPE).

PROPER HAND WASHING

According to the U.S. Centers for Disease Control and Prevention (CDC), healthcare professionals should always wash their hands when performing the following activities:[1,2,3]

- Before and after all patient contact
- After contact with potentially infectious materials (e.g., blood, bodily fluids, contaminated surfaces)
- Before donning sterile gloves and PPE and after removing these items
- Before touching eyes, nose or mouth and after nose blowing, coughing or sneezing
- Before preparing food or eating
- After going to the bathroom

Hand Hygiene Key Steps:[4]

1. Wet hands with clean running water (warm or cold) and apply soap.

If soap and water are not available, use an alcohol-based hand sanitizer that contains at least 60% alcohol

2. Rub hands together to make a lather and scrub them well; be sure to scrub the backs of hands, between your fingers, and under nails.

3. Continue rubbing hands for at least 20 seconds. Need a timer? Hum the "Happy Birthday" song from beginning to end twice.

4. Rinse hands well under running water.

5. Dry your hands using a clean towel or air dry.

PPE PROTOCOL[2]

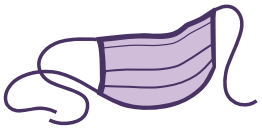
All healthcare professionals should be educated on proper selection and use of PPE, especially when there is an increased risk for influenza and norovirus outbreaks:

Gloves

Wear gloves for contact with potentially infectious material (i.e., bodily fluids) or contaminated surfaces/equipment. Remove after contact and do not reuse.

Gown

Wear gowns to protect skin/clothing from bodily fluids. Do not wear the same gown while caring for multiple patients.



Face shield

Wear a face shield (mouth, eye, nose protection) when entering the room of a patient with suspected or confirmed influenza or when there is anticipated risk of splashes to the face or sprays of bodily fluids.

1. Boyce, J.M., Pittet, D. "Guideline for Hand Hygiene in Health-Care Settings: Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force." Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report. 51.1 (2002): 1-16.
2. Seasonal Influenza (Flu): Prevention Strategies for Seasonal Influenza in Healthcare Settings. Centers for Disease Control and Prevention, 9 Jan. 2013. Date accessed: 2 Aug. 2013.
3. Hand Hygiene in Healthcare Settings: Hand Hygiene Basics. Centers for Disease Control and Prevention, 30 Jul. 2012. Date accessed: 2 Aug. 2013.
4. CDC Features: Wash your Hands. Centers for Disease Control and Prevention, 25 Mar. 2013. Date accessed: 5 Sept. 2013.

NI-22168

Are you ready?

Influenza and norovirus season is coming.

Get ready, with a portfolio of solutions EPA-registered to kill influenza and norovirus.

Clorox Healthcare® Hydrogen Peroxide Cleaner Disinfectants

- Wipes and sprays EPA-registered to kill norovirus in 3 minutes (wipes) and 1 minute (sprays), & influenza viruses in 30 seconds
- No harsh chemical odors or fumes
- Kills more than 40 pathogens, including norovirus, TB and 13 antibiotic resistant organisms

Clorox Healthcare® Bleach Germicidal Cleaner Disinfectants

- Wipes and sprays EPA-registered to kill norovirus and influenza viruses in 1 minute
- Trusted by more hospitals than any other ready-to-use bleach products
- Kills a broad spectrum of pathogens, including 12 antibiotic resistant organisms

Clorox® Broad Spectrum Quaternary Disinfectant Cleaner

- Spray EPA-registered to kill norovirus in 30 seconds and Influenza A virus in 2 minutes
- Kills 90 pathogens in 5 minutes or less
- Alcohol-free, fragrance-free with no harsh chemical odors or fumes
- A powerful cleaner that is compatible with most hospital surfaces

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NI-22169

Preventing Influenza & Norovirus:

SEASON OF PREVENTION

The risk of patients and staff contracting influenza and norovirus is highest between October and April. This season, prevent the spread of infections in your facility by following bundled infection control measures recommended by the CDC:

Isolation Precautions

- **Place patients on Contact Precautions** if they have influenza or norovirus symptoms
- **Require ill staff to stay home** for at least 48 hours after symptoms resolve
- **Restrict non-essential visitors** from affected areas during outbreaks

Personal Protective Equipment

Use Personal Protective Equipment (PPE) during outbreaks according to Contact and Standard Precautions (such as gowns, gloves, and eye protection, if needed)

Vaccination

The most important step in influenza prevention (there is no vaccination for norovirus)

Prevent the Spread of

Influenza & Norovirus

Environmental Cleaning & Surface Disinfection

- **Clean and disinfect** surfaces with a product EPA-registered to kill both influenza and norovirus
- **Follow label instructions** closely to ensure complaint use
- **During outbreaks, clean and disinfect** high-touch surfaces three times daily
- **Use Standard Precautions** for handling soiled items
- **Launder privacy curtains regularly** according to your facility's protocol

Hand Hygiene

- **Promote hand hygiene** for everyone entering patient care areas
- **Using soap and water** is best, but alcohol-based hand sanitizers are also effective

NI-22170

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