



Most Common Organisms Responsible for LTCF Outbreaks

County of Los Angeles
Department of Public Health
Acute Communicable Disease Control Program





Learning Objectives

1. Review common outbreaks encountered in long-term care facilities (LTCFs) in Los Angeles County
2. Discuss most common organisms (influenza, norovirus, scabies) responsible for LTCFs
Outbreak
3. Describe strategies to prevent and control influenza, norovirus, and scabies outbreaks in LTCF setting



2017 OBs by Diseases/Conditions in Sub-Acute Healthcare Facilities

All Sub-Acute Healthcare Facilities Outbreaks by Disease/Condition LAC, 2017		
Disease/Condition	No. of Outbreaks	No. of Cases
Gastroenteritis Illness	(N=29)	(N=587)
• Norovirus	15	414
• <i>Clostridium difficile</i>	3	13
• Unspecified	11	160
Rash Illness	(N=34)	(N=243)
• Atypical Scabies	10	50
• Scabies	15	136
• Ring worm	1	3
• Unknown Rash	8	54
Respiratory Illness	(N=58)	(N=1,186)
• Influenza	54	1117
• Rhino Virus	1	16
• <i>Legionella</i>	1	5
• Unspecified	2	48
Carbapenem-resistant Enterobacteriaceae (CRE)	2	34
Conjunctivitis	1	17
Hepatitis A	1	4
Total	125	2,071



Influenza





Influenza Facts

- Influenza or “flu,” is a contagious respiratory illness.
 - ✓ typically either a type A or type B influenza virus
- The Centers for Disease Control and Prevention (CDC) estimates that each year on average 5-20% of the population will get the flu
 - ✓ **LA County’s population: over 10 million**
approximately 500,000-2 million cases of influenza each season.



2017-18 Influenza Season Summary (1)

- LAC had **higher influenza activity than the previous 5 influenza seasons.**
- **Influenza A (H3N2) predominated**, along with high levels of influenza B from late March through May
- **The greatest number of influenza-associated deaths (Total of 278)**. reported since these deaths became reportable in Los Angeles County (2010)
 - **Majority in 65 years of age and older (79%, 219)**



2017-18 Influenza Season Summary

Respiratory Outbreaks

- More respiratory outbreaks (Influenza and other respiratory illness) reported in 2017-2018 season than in **any of the last 5 seasons.**
- **Majority of respiratory outbreaks -skilled nursing facilities (53%),** followed by schools and pre-schools (23%) .
- Of the 144 outbreaks reported, 113 were confirmed to be caused by influenza.



2018-19 Influenza Season

- Overall, this season's vaccine was estimated to be 47% (34%-58%) effective.
 - ✓ Estimated effectiveness was 61% (44%-73%) in children between 6 months and 17 years of age.
- CDC and CDPH report - **Influenza A H1N1** continues to predominate
- However, influenza A H3N2 has increased in recent weeks.

<https://www.cdc.gov/mmwr/volumes/68/wr/mm6806a2.htm>



Influenza Symptoms

- **Symptoms: Influenza-Like Illness** (refers to: Fever ($\geq 100^{\circ}\text{F}$ or 37.8°C) plus cough and/or sore throat.
 - Other influenza symptoms:
 - SOB
 - Muscle ache
 - Headache
 - Runny nose
- **Note: SNF residents may have subtle changes in mental status and a temperature below normal**



Transmission

- **Spread by viral particles coming in contact with the respiratory tract**
 - Infected person coughs or sneezes (droplet)
 - Uninfected person inhales the viral particles
- Occasionally people may be infected by touching something that has a virus on it and then touching their eyes, nose, or mouth.
- Can survive on surfaces for 24-48 hours



Incubation Period

- May infect others from **1 day before getting sick to 5-7 days after**
- Individuals are most infectious during the first 3 days of illness.



Diagnosis

- **Cannot be based on symptoms alone, establish the diagnosis through laboratory testing**
- Most sensitive and accurate tests for influenza virus detection are molecular or nucleic acid amplification tests (e.g., RT-PCR)
- Rapid influenza diagnostic tests (RIDTs)
 - more quickly identify influenza
 - sensitivity of these tests can be low
 - a negative test result could be a false negative and should not preclude further diagnostic testing (such as RT-PCR) and starting empiric antiviral treatment



Diagnosis (2)

- **A nasopharyngeal (NP) swab is the optimal** upper respiratory tract specimen collection method for influenza testing.
- Samples should be collected within the first 4 days of symptom onset.
- In an outbreak, collect specimens from **at least 2 separate and up to 5 symptomatic individuals** who have not yet received antiviral treatment.
- However, **do not delay antiviral treatment in order to collect specimens.**



Treatment

- **Supportive care and antiviral medication** may reduce duration of symptoms, severity, and contagiousness
- Treatment works best when started within the first 2 days of symptoms, still effective when given more than 48 hours after
- **Outbreak Situation in LTCF**
 - **All residents** who have confirmed or suspected influenza should receive antiviral treatment immediately; treatment should **NOT** be delayed while waiting for laboratory confirmation.



Antiviral Chemoprophylaxis

- **Outbreak Situation in LTCF**
 - Recommended for all non-ill residents who are not exhibiting influenza-like illness (ILI) but who may be exposed or may have been exposed to an ill person with influenza
 - regardless of their influenza vaccination status
 - Priority should be given to residents in the same unit/floor as an ill resident

Antiviral Chemoprophylaxis (2)

- Consider providing antiviral chemoprophylaxis to unvaccinated staff who provide care to persons at high risk of influenza complications
- **In an outbreak at LTCF setting**, CDC recommends antiviral chemoprophylaxis for a minimum of 2 weeks, and continuing for at least 7 days after the last known case was identified.



Influenza Prevention Strategies

1. Influenza Vaccination of HCP and among Residents
2. Education/Awareness and Early Recognition of Influenza-like Illness (ILI)
3. Infection Control and Prevention Management



Influenza Vaccination of HCP and Residents

- Effective in reducing influenza among HCP and residents/patients
- Decreased morbidity and mortality among residents/patients
- Reduction in staff illness and illness-related absenteeism.
- Increased productivity



LAC DPH Health Officer Order for Flu Vaccination or Masking for HCP

- On **Oct 2, 2013**, LAC Health Officer County issued the following health order:

“Pursuant to my authority under §120175 of the California Health and Safety Code, I hereby order **every licensed acute care hospital, skilled nursing facility, and intermediate care facility within the County of Los Angeles public health jurisdiction to implement a program under which healthcare personnel at such facility receive an annual influenza vaccination for the current season or wear a mask** for the duration of the influenza season while in contact with patients or working in patient-care areas.”

- Applies to all persons, including paid and unpaid employees, contractors, students, and volunteers
- Effective annually from November 1 – March 31 (Flu season)



LAC DPH Health Officer Order for Flu Vaccination or Masking for HCP

- **Purpose:** Limiting the spread of Influenza in LAC Acute Hospitals, Skilled Nursing Facilities, and Intermediate Care Facilities
- **Effective 2018-2019 Influenza Season, the HOO extends the annual “flu season” to April 30th of each year (Nov. 1 – April 30).**



Prompt Recognition of Influenza-Like Illness (ILI)

- Active screening
- Isolation
- Testing
- Treatment
- Restrictions for sick healthcare workers and visitors
- Encourage reporting
- Involve patients and families

Respiratory Etiquette & Educational Signage

Why do we wear masks?



FOR EVERYONE

Wearing a mask keeps us from catching or spreading germs. Keeping everyone healthy during flu season means...

- Our team gets a flu shot or wears a mask
- If you are a visitor or a patient and you feel sick, like when you have a fever, chills, cough, sore throat, body aches, runny or stuffy nose—tell a healthcare professional on our team.

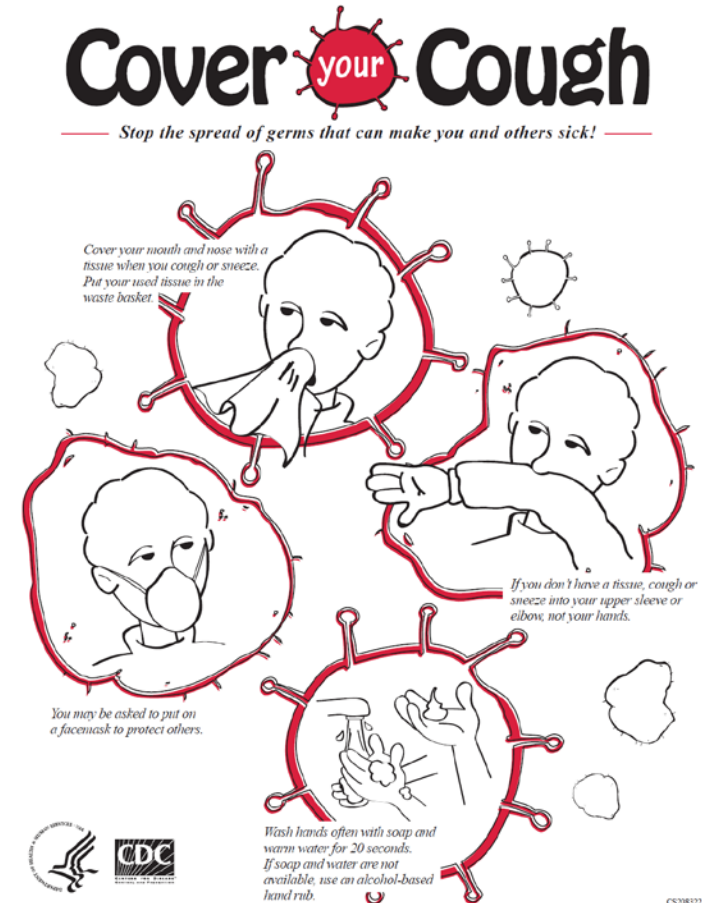
WE HELP EACH OTHER STAY HEALTHY!

[Insert your logo here]

For more information, contact:

[Insert contact name]
[Insert contact number or email]

Rev: 12/16/2013



CS20822



Infection Control

- **Transmission-based Precautions**
 - ✓ Standard precautions & Droplet isolation
 - ✓ Implement precautions for suspected or confirmed influenza for 7 days after illness onset or until 24 hours after resolution of fever and respiratory symptoms, whichever is longer
- Hand hygiene and isolation supplies
- Single room or Cohorting (grouping) as necessary
- Exposure investigations
- Antiviral Treatment & Prophylaxis



Influenza Outbreak Definition

Healthcare-associated institutions (i.e., skilled nursing facilities, intermediate care facility) :

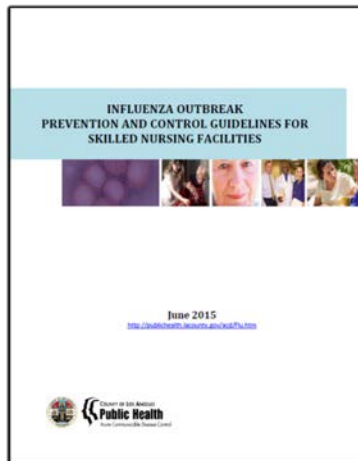
- At least one case of laboratory-confirmed influenza in the setting of a cluster (≥ 2 cases) of **ILI** within a 72-hour period
 - **ILI** is defined as fever ($\geq 100^{\circ}\text{F}$ or 37.8°C) plus cough and/or sore throat
 - other influenza symptoms include shortness of breath, chills, headache, myalgia, and malaise. Influenza can sometimes cause gastrointestinal (GI) symptoms

Influenza Outbreak Prevention And Control Guidelines For SNFs

LAC DPH Guidelines for SNFs

- How-to guide for influenza outbreak prevention and control in skilled nursing facilities

<http://publichealth.lacounty.gov/acd/SNFToolKit.htm>

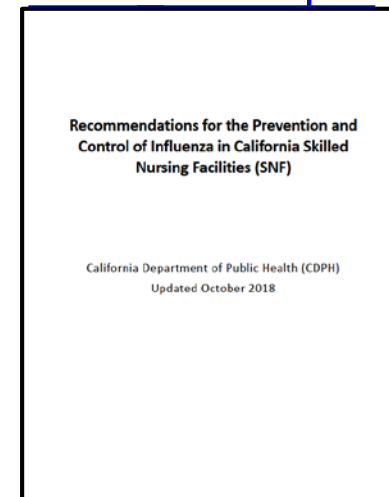


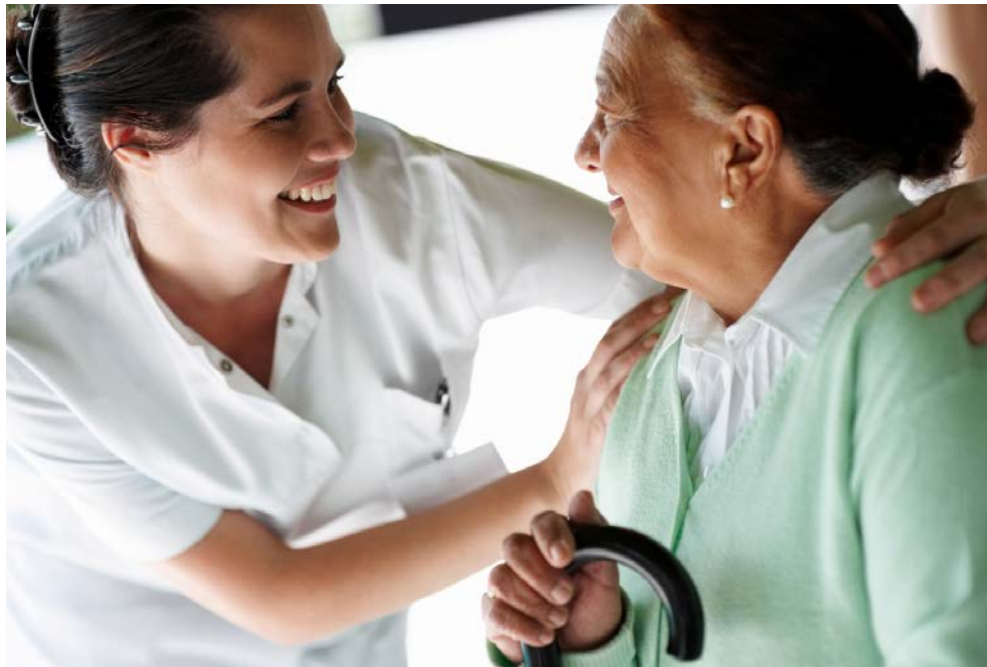
CDPH Guidelines for SNFs

Oct 2018

<https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/RecommendationsForThePreventionAndControlOfInfluenzaNov>

2018 FINAL.pdf





Norovirus (Norwalk-like viruses)



Burden of Norovirus Infection

- **#1 cause of acute gastroenteritis in U.S.**
 - 21 million cases annually
 - 1 in 14 Americans become ill each year
 - 71,000 hospitalized annually in U.S.
- Occurs year round with **peak activity during the winter months**

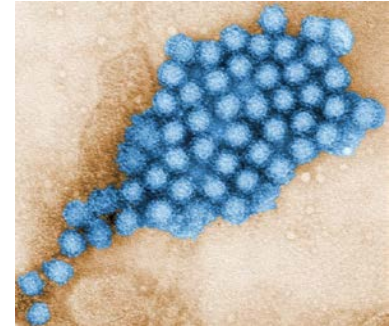


Norovirus in Healthcare Facilities

- The most commonly reported setting for norovirus outbreaks in the United States
- The virus can be introduced into healthcare facilities by infected patients, staff, visitors, or contaminated foods.
- In the elderly, illness can be severe requiring hospitalization



Norovirus

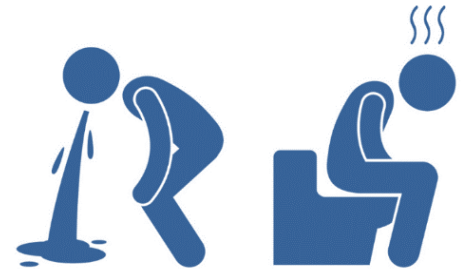


- **Noroviruses (family Caliciviridae)**
 - single-stranded RNA, non-enveloped viruses that cause acute gastroenteritis in humans.
 - Many different types of noroviruses.
 - human noroviruses belong to one of three norovirus genogroups (GI, GII, or GIV)
 - Over 75% of confirmed human norovirus infections are associated with **Genogroup II type 4 (GII.4)**
- Lack of immunity in the population leads to outbreaks



Clinical Manifestations

- Infectious dose: 18-1000 viral particles
- Incubation period: 12-48 hours
- Acute-onset vomiting and/or diarrhea
 - Watery, non-bloody stools
 - Abdominal cramps, nausea, low-grade fever
 - 30% infections asymptomatic
- Most recover after 12-72 hours
 - Up to 10% seek medical attention; some require hospitalization and fluid therapy
 - More severe illness and death possible in elderly and those with other illnesses



Transmission



- Direct contact with someone who is infected with norovirus, such as by caring for them or sharing food or eating utensils with them
- Eat food or drink liquids that are contaminated with norovirus
- Touch surfaces or objects contaminated with norovirus then put your fingers in your mouth, or
- Also spread via a **droplet route from vomitus**. These viruses are relatively stable in the environment and can survive freezing and heating to 60°C (140°F).



How Norovirus is Diagnosed

- In Los Angeles County, norovirus is detected in stool using reverse transcription polymerase chain reaction (RT PCR)
- Requires fresh (unfrozen) stool
- Stool should be obtained from ill individuals
 - Ideally within 48-72 hrs. post onset
 - Must be kept refrigerated
 - Kaplan criteria can be used to characterize the outbreak etiology as norovirus



Diagnosis

- Test is used for **confirmation of outbreak only**
 - Individual results will **NOT** be released
- Testing requires at least 3 specimens per outbreak
 - Must be coordinated through Public Health



How Norovirus is Treated

- **Supportive care**
 - Oral hydration if possible
 - IV hydration if unable to take oral hydration
 - Anti-emetics
- Antibiotics do not work and should not be used to treat norovirus infection.
- Vaccine in development



Infection Control Activities

- **Key Infection Control Activities**
 - Rapid identification and implement infection control measures
 - Communicating the presence of suspected cases to Infection Preventionist
 - Promoting increased adherence to hand hygiene, particularly the **use of soap and water** after contact with symptomatic patients

Note- alcohol based hand sanitizers are not effective to prevent norovirus infection



Infection Control Activities (2)

- **CONTACT PRECAUTIONS** – single occupancy room with a dedicated bathroom, **strict adherence to hand hygiene, wear gloves and gown upon room entry**
 - A minimum of 48 hours after the resolution of symptoms
 - Symptomatic patients may be cohorted together
 - Exclude ill staff members and food handlers in healthcare facilities for a minimum of 48 hours following resolution of their symptoms
- Exclude non-essential personnel and visitors



It's NOT Just the Hands

- Increase frequency of cleaning and disinfection of frequently touched environmental surfaces and equipment
- Immediately wash clothing or linens that may be contaminated
- Disinfect any shared equipment
- Clean carpets or furnishings with hot water and detergent or steam clean
- Dispose of any food that may have been contaminated by staff or residents



Infection Control: Environmental Cleaning and Disinfection

- Clean up vomit and fecal spillages promptly
 - Wear a gown, mask, and gloves during NV outbreak season
- Flush any vomit and/or stool in the toilet and disinfect the area
- **Increase frequency of cleaning** to 2 X the normal practice at facility using EPA approved disinfectants or a fresh solution of sodium hypochlorite
 - Chlorine bleach to water ratio should be 1:50-1:10 (use within 24 hrs) at minimum
 - “Quats” and other common cleaners not effective



For More Information

- [Norovirus Outbreak Prevention Toolkit: A Guide for Preventing Norovirus Outbreaks in Skilled Nursing Facilities](#)
(10-12-12)
- [Norovirus Presentation: Norovirus in Skilled Nursing Facilities](#)
(12-10-12)
- CDC-Norovirus in HC Facilities
<http://www.cdc.gov/HAI/organisms/norovirus.html>
- Guidelines for Environmental Infection Control in Health Care Facilities
www.cdc.gov/ncidod/dhqp/gl_environinfection.html



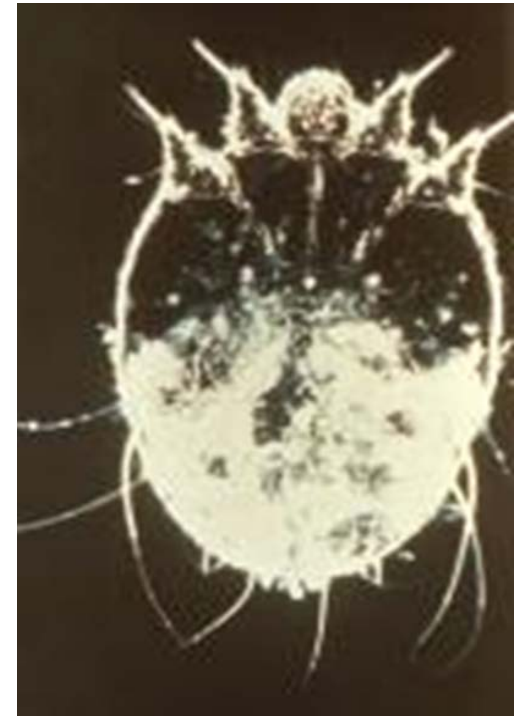


Scabies



Scabies Infestation

- An infestation of the skin by the human itch mite (*Sarcoptes scabiei*)
- Mites burrow under the skin and lay eggs
- Intense itching, especially at night and over most of the body
- Infestation causes rash (small red bumps), Papules (pimple-like rash), Vesicle (blister-like rash)

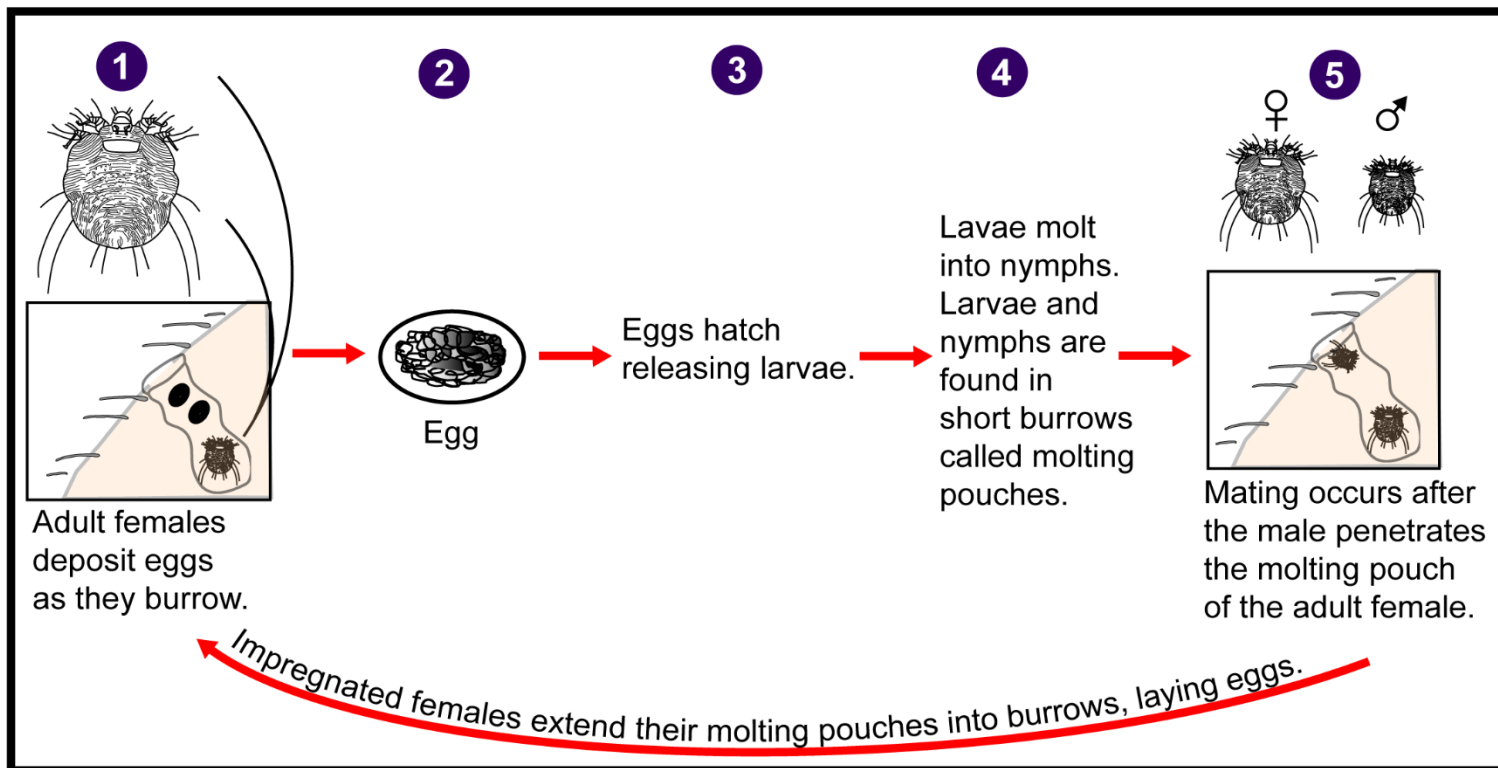


<http://phil.cdc.gov/phil/>

Scabies Life Cycle

Scabies

(Sarcoptes scabiei)



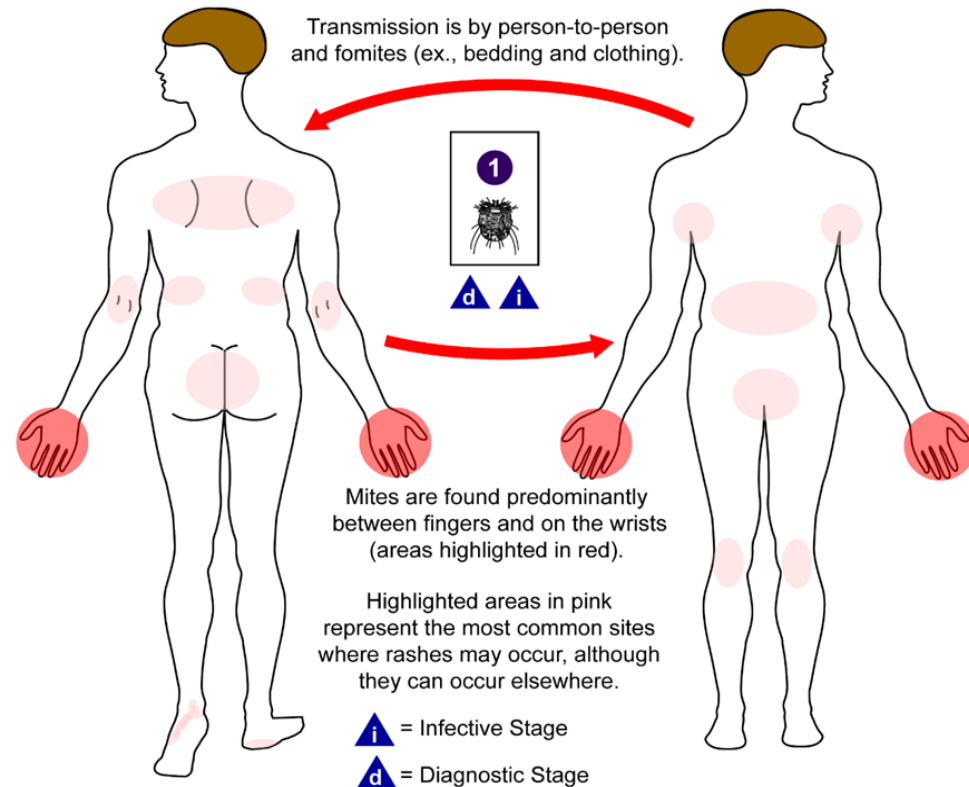


Transmission

- **Direct is most common**
 - Prolonged, Skin-to-skin contact
 - Brief casual contact like a handshake poses a low risk for transmission
- **Indirect is less common**
 - Shared clothing, infested bedding
- Common in families, institutional settings
- Dependent on mite load, duration of contact

Commonly Affected Sites

- Wrists
- Finger webs
- Elbows
- Skin folds
- Under breasts
- Waistline
- Lower abdomen
- Genitals
- Buttocks
- Thighs



Typical Scabies

- Mildly contagious
- Takes 15-50 mites to cause infection
- Usually presents in the finger webs
- More likely to cause infection in LTC or residential care facilities
- Never had scabies before, symptoms may take as long as 2-6 weeks to begin
 - If previously infested, symptoms usually appear much sooner 48 hrs. or less after exposure



<http://www.firstderm.com/skin-guide/scabies/>

Atypical “Crusted” Scabies

- Formerly known as **Norwegian scabies**
 - A severe form of scabies
 - Occurs primarily in older, immunocompromised, or individuals living in close quarters
 - Incubation period may be reduced from the usual time of 2-6 weeks to as little as a few days.



<https://commons.wikimedia.org/wiki/>

Atypical “Crusted” Scabies

- Thick crusts of skin that contain large numbers of scabies mites and eggs
- Can spread the infestation easily both by direct skin-to-skin contact and by contamination of items such as their clothing, bedding, and furniture



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Mandell GL, Bennett JE, Dolin R. (2005) *Principals and practice of infectious disease*. Sixth Edition.



Diagnosis of Scabies

- Often misdiagnosed
- Evaluate for clinical signs and symptoms
- Skin scraping
 - Microscopic demonstration of the mite, ova, or fecal matter obtained from a skin scraping
 - **Negative skin scraping does not rule out scabies infestation**



Who Should Be Treated for Scabies?

- Anyone diagnosed with scabies
- Persons who have close, prolonged contact with the infested person should also be treated:
 - Patients
 - Household members
 - Employees
 - Co-workers
 - Sexual partners
 - Friends
- **Everyone should receive treatment at the same time to prevent re-infestation**



Scabies Treatment Options

- Refer to CDC, CDPH, and LAC DPH Guidance
- Topical and oral medicines are available to treat scabies
- Available only with a doctor's prescription; no "over-the-counter" products
- Leave treatment on for recommended time
- **Treat all close personal contacts**
 - **Treat at same time** to prevent reinfection



Scabies Treatment

- **Topical Scabicide (most frequent)**
 - 5% Permethrin cream (Elimite, Acticin)
 - 10% crotamiton lotion (Eurax)
- **Oral anti-parasitic agent**
 - Ivermectin (Mectizan or Stromectol)
 - Often prescribed but not currently approved by FDA for scabies treatment



Scabicide Application

- Avoid contact with the eyes and mouth
- If scabicide is washed off during hand washing, toileting or perineal care, it must be reapplied to that area
- Apply medication to the skin and wash off after 8-14 hours (can be applied at bedtime and washed off in the morning)
- Itching may persist for 1-2 weeks following successful treatment



Preventive Treatment for HCW Contacts

- Provide prophylactic scabicide along with written instructions for application, to all HCW with direct contact to a scabies case.
- **HCW who refuse prophylactic treatment must be required to wear gowns and gloves for contact with patients/residents or fellow HCW for 6 weeks from the date of last potential exposure (usually 6 weeks from implementation of control measures).**



How long can scabies mites live?

- On a person, scabies mites can live for as long as 1-2 months.
- Off a person, scabies mites usually do not survive more than 48-72 hours.
- Scabies mites will die if exposed to a temperature of 50°C (122°F) for 10 minutes.



Scabies Prevention- Healthcare Setting

1. Educate HCP on how to identify scabies signs and symptoms. -Emphasize that people can be infested and contagious for up to 6 weeks before symptoms begin.
2. Assess skin, hair and nail beds of all new admissions as soon as possible following arrival/admission
3. Document pruritus, rashes and skin lesions
4. Notify nursing supervisor and the attending clinician
5. Repeat skin assessment at least every 4 weeks
6. Instruct HCP, visitors and volunteers to report any exposure to scabies in the home or the community



Clean Bedding and Clothing

- Clean bedding and clothing worn or used next to the skin during the 3 days before treatment
 - Machine wash and using the **hot water and hot dryer cycles or use dry-cleaner**
 - Place items unable to cleaned or laundered in a **closed plastic bag for 3 days to a week.**



Outbreak Definitions

- Scabies can be diagnosed clinically or via skin scraping.
- An example of a scabies acute care hospital or long-term care facility **outbreak definition**:
 - **Two (2) or more clinically suspect or confirmed cases of scabies identified in patients/residents, healthcare workers, volunteers and/or visitors during a six (6) week time period**



Reporting

- Single occurrences of typical, or classic, or **atypical scabies** are not reportable to public health.
 - **A single case of atypical scabies is not reportable since Jan. 2019.**
- **Outbreaks of Any Disease are required to be reported to the County of Los Angeles Department of Public Health**
 - Contact phone #: (888)397-3993
- Outbreaks are also reportable to LAC Department of Public Health, **Health Facilities Inspection Division, Licensing and Certification.**



Resources

- **ACDC web site:** <http://www.ph.lacounty.gov/acd/>
- **Scabies toolkit:**
<http://publichealth.lacounty.gov/acd/Diseases/ScabiesToolkit.htm>



Environmental Infection Control Resources

- **CDPH healthcare-associated infections (HAI) Program Environmental Cleaning website**
<https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/EnvironmentalCleaning.aspx>
- **Oregon Patient Safety Commission and the Oregon Healthcare-Associated Infection Program Infection Prevention Education -Environmental Hygiene Training Videos (Youtube)**
 - 12 in English:
https://www.youtube.com/playlist?list=PLwK925MY2VnNbPlcuM8UYrWYzV7-fk_jW
 - 11 in Spanish:
<https://www.youtube.com/playlist?list=PLwK925MY2VnOujZ8Nqrb4Bxd968dOcFjz>



Acknowledgments

- California Department of Public Health Center for Health Care Quality Healthcare-Associated Infections (HAI) Program
- Los Angeles County Department of Public Health Acute Communicable Disease Control Program
- Los Angeles County Department of Public Health Community and Field Services

Questions



Thank you!

