





INFECTION CONTROL UPDATES

WITH

DR. JOSEF ZWASS

TUESDAY, MARCH 28, 2023 9:00 - 10:30 AM PST

CLINIC IN THE PARK MONTHLY COLLABORATOR ZOOM MEETING















American Academy of Pediatrics



March 28, 2023

Dr. Josef Zwass

AAP-CA3 Infectious Disease Committee

HOUSEKEEPING

This session will be recorded for educational and quality improvement purposes.



DISCLOSURES

• I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider of commercial services discussed in this CME activity.

• I do not intend to discuss an unapproved/investigative use of a commercial product/device in our presentation.





OBJECTIVES

- Why Project Firstline--Review recent trends in Hospital Acquired Infections
- Introduce Project Firstline
- Review Respiratory Infection trends (COVID, Influenza, RSV)
- Project Firstline-
 - Resources and examples
- Review Infection Prevention actions (in Healthcare settings)



LA TIMES-FEBRUARY 5, 2023

CALIFORNIA

While COVID raged, another deadly threat was on the rise in hospitals



SUBSCRIBERS ARE READING >

WORLD & NATION

2 kidnapped Americans found dead in Mexico; 2 others rescued and returned to the U.S.

UCLA SPORTS

Analysis: The loss of Jaylen Clark doesn't mean the end of the road for UCLA's title hopes

LIFESTYLE

FOR SUBSCRIBERS

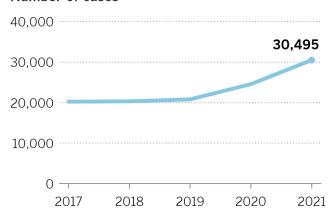
Do kids really need grass? This magical L.A. garden will make you rethink turf

CCIENCE & MEDICINE

Severe sepsis acquired in California hospitals

Cases of "hospital acquired" sepsis rose during the pandemic, state data show.

Number of cases

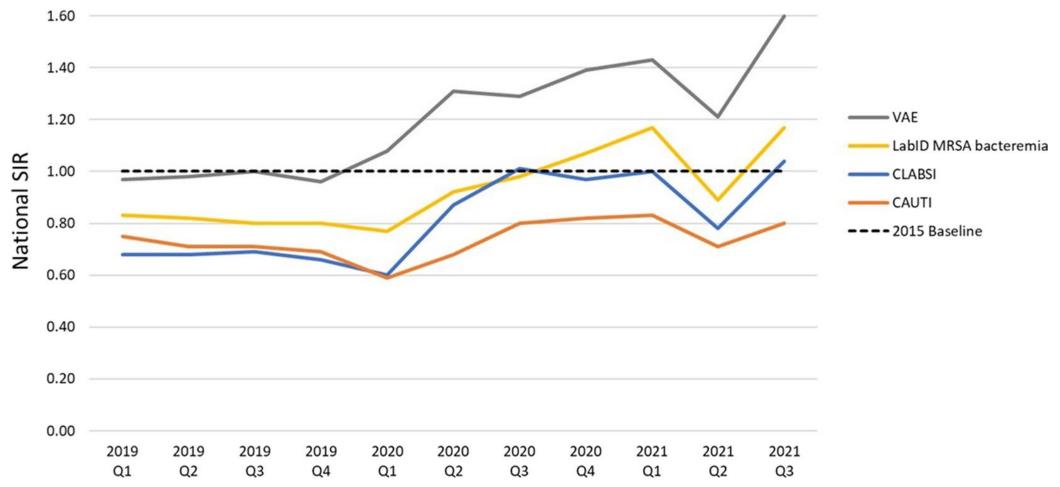


California Department of Health Care Access and Information

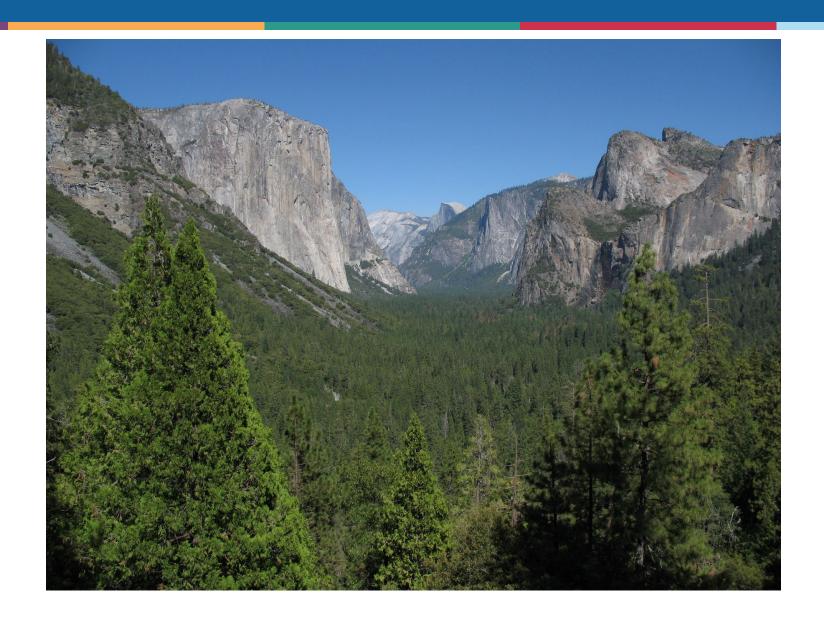
Emily Alpert Reyes LOS ANGELES TIMES



QUARTERLY NATIONAL SIRS FOR SELECT HAI TYPES, 2019-Q1 - 2021-Q3









HOSPITAL ACQUIRED INFECTIONS-CALIFORNIA

Link to Print Version Healthcare-Associated Infections Report, 2021 **Hospital Type** 328 Acute Care Hospitals Acute Care Hospitals **Public**Health The trend lines show this hospital type's healthcare-associated infection (HAI) incidence from 2015 to 2019, July through December 2020†, and 2021 reported as standardized infection ratios (SIR) when possible. Each result is interpreted as the 🖨 Same, ★ Better, or 🗱 Worse than the national or state comparison. Central Line-Associated Bloodstream Infections (CLABSI) 2021 Reported 2021 Predicted 2,869.1 0.95 0.90 2,879,638 Central Line Days 0.85 0.79 0.67 Compared with 2015 ★ Better National Baseline Met 2020 Goal No 2015 2016 2017 2018 2019 2020 2021 Year Methicillin-Resistant Staphylococcus aureus Bloodstream Infections (MRSA BSI) 2020 MPSA Goal 1.0 2021 Reported 892 1.00 0.97 0.95 0.95 2021 Predicted 889.7 Patient Days 15,251,367 0.76 1.00 Compared with 2015 \Rightarrow Same National Baseline Met 2020 Goal 2021 No 2015 2016 2017 2018 2019 2020 Year Clostridioides difficile Infections (CDI) ---- 2020 CDI Goal 2021 Reported 4,355 1.15 2021 Predicted 7,943.7 Patient Days 13,966,517 0.55 0.68 0.60 0.56 0.55 Compared with 2015 ★ Better National Baseline 0.0 2020 2021 Met 2020 Goal 2015 2016 2017 2018 2019 Year Vancomycin-Resistant Enterococcus Bloodstream Infections (VRE BSI) 0.4-2021 Reported 511 0.43 0.40 0.34 15,251,367 Patient Days 0.33 0.30 E 0.2-0.26 0.34 *Rate 0.21 0.0 SIR unavailable. Rate per 10,000 patient 2015 2016 2017 2021 2018



HOSPITAL ACQUIRED INFECTIONS-CALIFORNIA

Healthcare-Associated Infections Report, 2021

328 Acute Care Hospitals

Hospital Type
Acute Care Hospitals



Link to Print Version

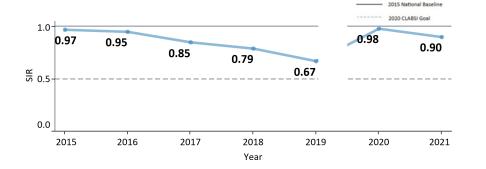
The trend lines show this hospital type's healthcare-associated infection (HAI) incidence from 2015 to 2019, July through December 2020†, and 2021 reported as standardized infection ratios (SIR) when possible. Each result is interpreted as the Same, **Better, or ** Worse* than the national or state comparison.

Central Line-Associated Bloodstream Infections (CLABSI)

2021 Reported 2,583
2021 Predicted 2,869.1
Central Line Days 2,879,638
SIR 0.90

Compared with 2015
National Baseline Better

Met 2020 Goal No



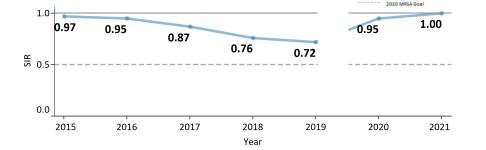
Methicillin-Resistant Staphylococcus aureus Bloodstream Infections (MRSA BSI)

2021 Reported 892
2021 Predicted 889.7
Patient Days 15,251,367
SIR 1.00

Compared with 2015 National Baseline

Same

Met 2020 Goal No









PROJECT FIRSTLINE

- Project Firstline is a national collaborative led by the U.S. Centers for Disease Control and Prevention (CDC a department under HHS) to provide infection control training and education to frontline healthcare workers and public health personnel.
- American Academy of Pediatrics is proud to partner with Project Firstline, as supported through Cooperative Agreement CDC-RFA-OT18- 1802.
- The contents of this program do not necessarily represent the policies of CDC or HHS and should not be considered an endorsement by the Federal Government.



WHAT MAKES PROJECT FIRSTLINE UNIQUE?

- Resources are developed with healthcare workers, specifically for healthcare workers
- Content is accessible to all healthcare workers, regardless of previous training or background knowledge
- Bite-sized content is tailored for practice and on-the-go use and is designed to be integrated into the workday
- Teaches the "why" behind infection control recommendations as much as the "what" and "how"
- Educational resources and dissemination methods are tailored for the diverse healthcare workforce, including translations for those who speak Spanish and multiple Asian languages



PROJECT FIRSTLINE:

TRAINING TO RECOGNIZE RESERVOIRS: WHERE GERMS LIVE

- was developed to address gaps in infection control knowledge and practice in healthcare settings nationwide;
- delivers innovative and accessible infection control education for all frontline healthcare workers;
- provides relevant information and training for all healthcare workers regardless of role;
- offers a variety of infection control educational resources, from videos and infographics to training toolkits and interactive tools.

https://www.cdc.gov/infectioncontrol/projectfirstline/healthcare/education al-materials.html



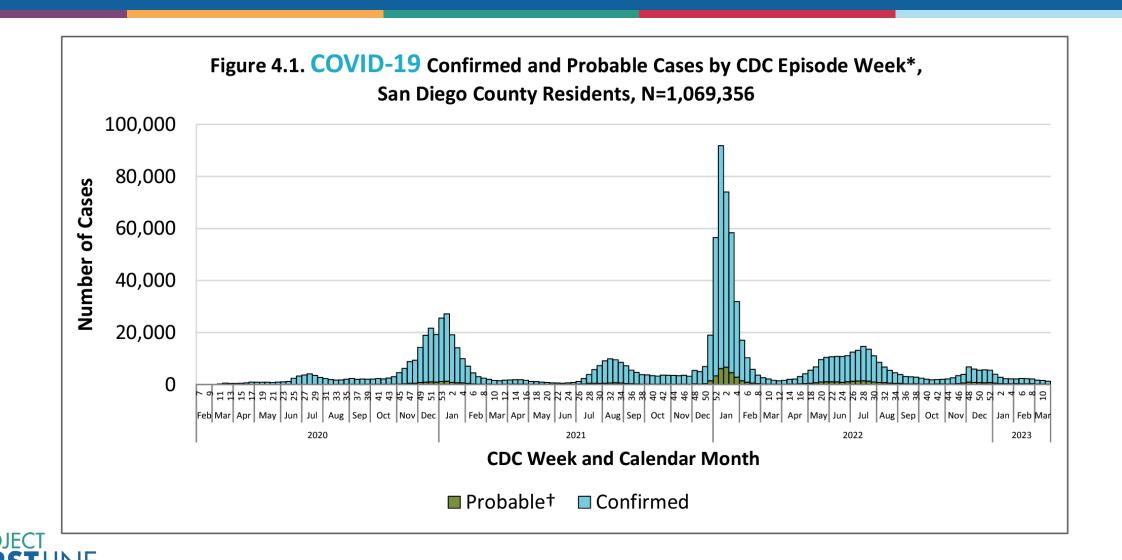
CURRENT INFECTION TRENDS



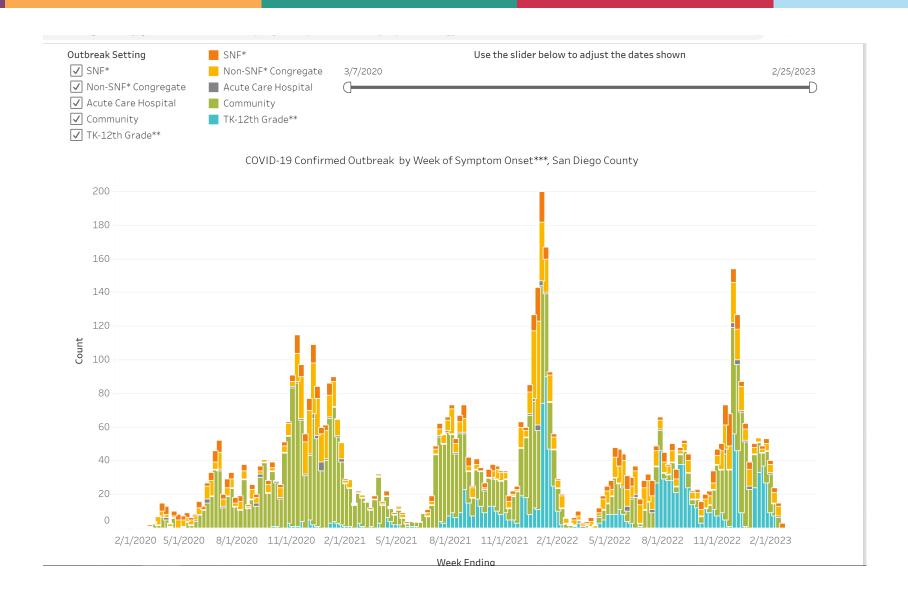


COVID-19 SAN DIEGO

for Healthcare Infection Prevention & Control

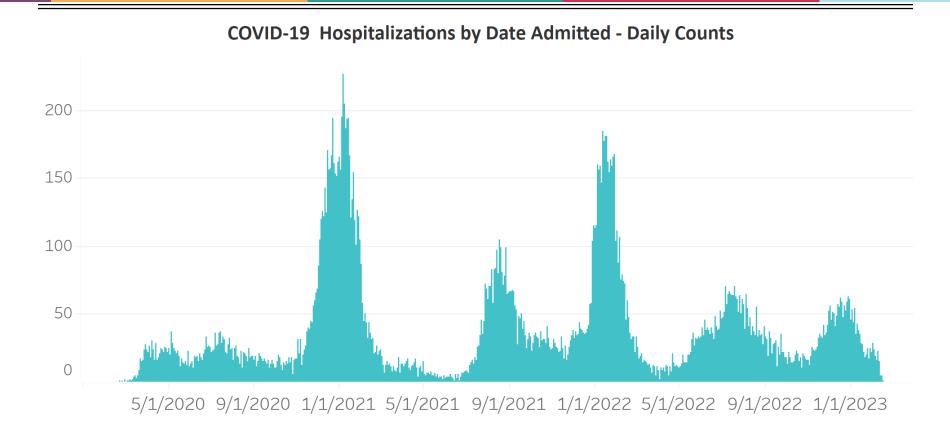


COVID SAN DIEGO-OUTBREAKS





COVID-19 SAN DIEGO

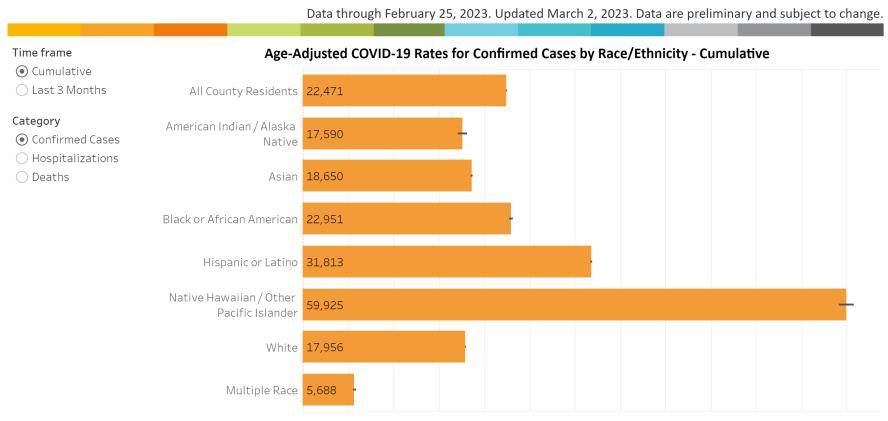


^{**}Episode date is the earliest of the following available dates: symptom onset date, specimen collection date, date of death, date reported Data for the most recent week may be incomplete.

Date admitted is not known for all hospitalizations; information may be updated as case investigations proceed.



COVID SAN DIEGO DATA



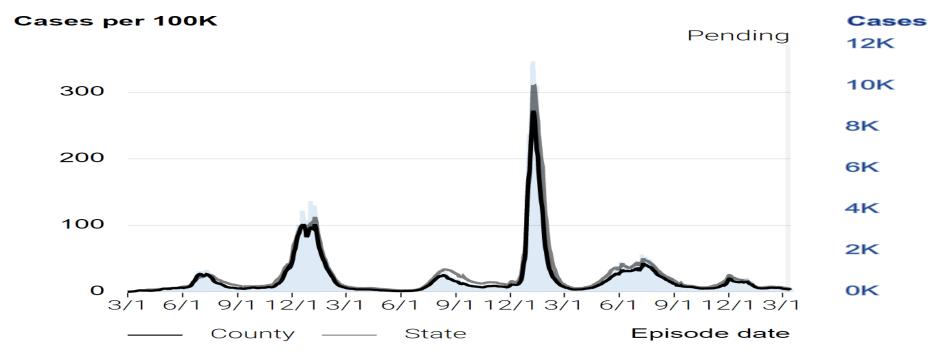
The black lines represent the 95% confidence intervals (error bars). Rates are not calculated for fewer than 20 events. Death rates for previous three months are not shown.



COVID 19 ORANGE COUNTY

711,799 total confirmed cases

129 average cases per day4.0 cases per 100K (7-day average)



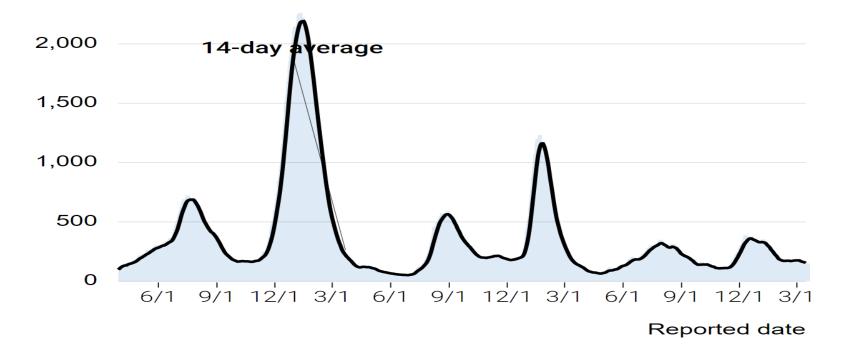
Cases and deaths source data . Data is updated weekly.



COVID 19 ORANGE COUNTY

COVID-19 hospitalized patients

fewer patients hospitalized from prior day total (2.0% decrease)



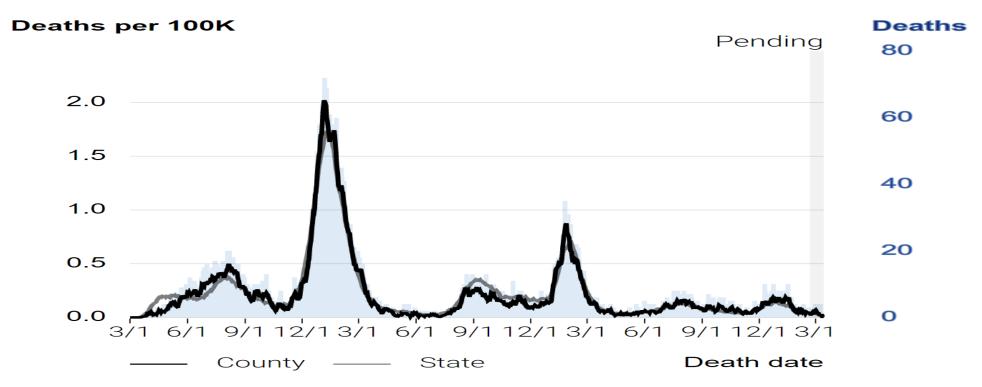


COVID 19 ORANGE COUNTY

7,982 total confirmed deaths

1 average deaths per day

0.03 deaths per 100K (7-day average)



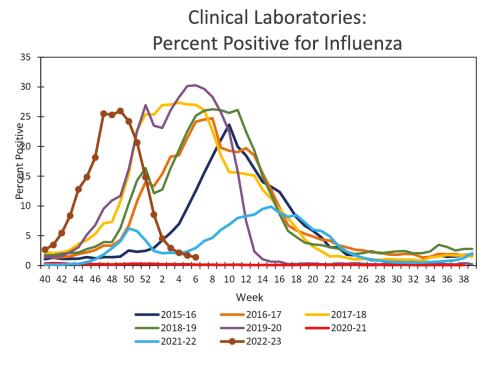




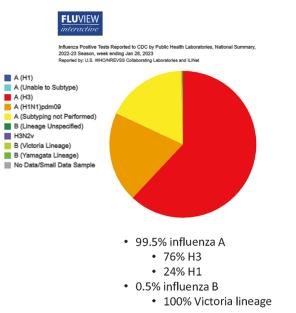


Percentage of Influenza Detections at Clinical Sentinel Laboratories, 2015–2023 Season to Date National data-Flu view

Virologic Surveillance

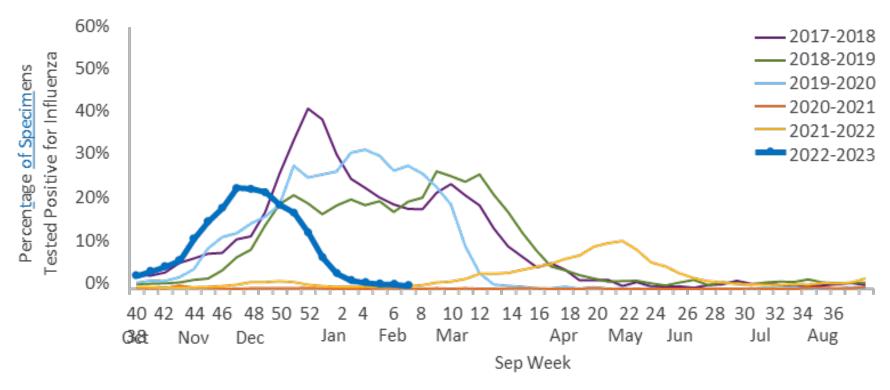


Public Health Laboratories: Influenza Virus Subtyping/Lineage Testing





Percentage of Influenza Detections at Clinical Sentinel Laboratories, 2017–2023 Season to Date CDPH data



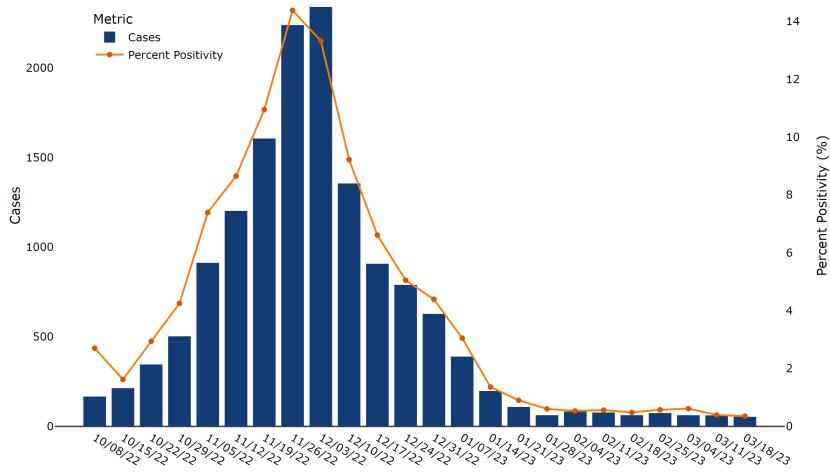
Note: Data have been shifted so that Week 1 aligns across seasons.

Respiratory Specimens Testing Positive for Influenza — Clinical Sentinel Laboratories, Current Week and Season to Date



INFLUENZA -ORANGE COUNTY

Influenza Surveillance in Orange County, Season 2022-23



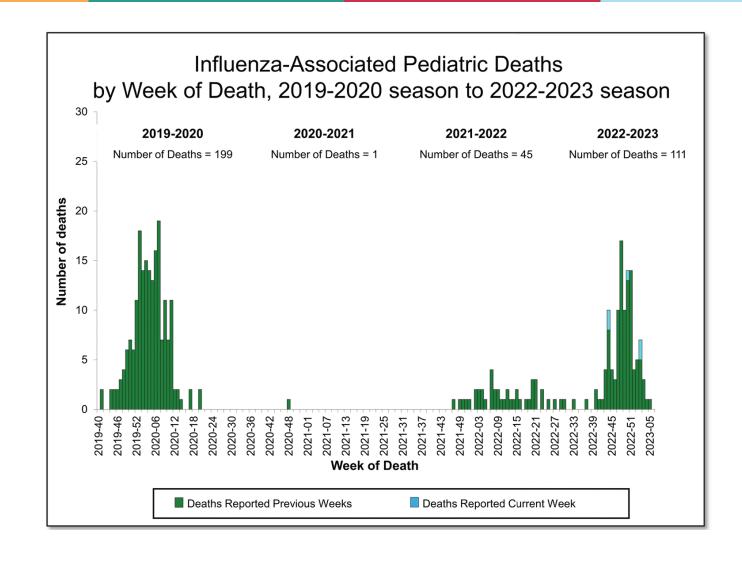


Specimen Collection Date (Week Ending)

National data-(Flu view)

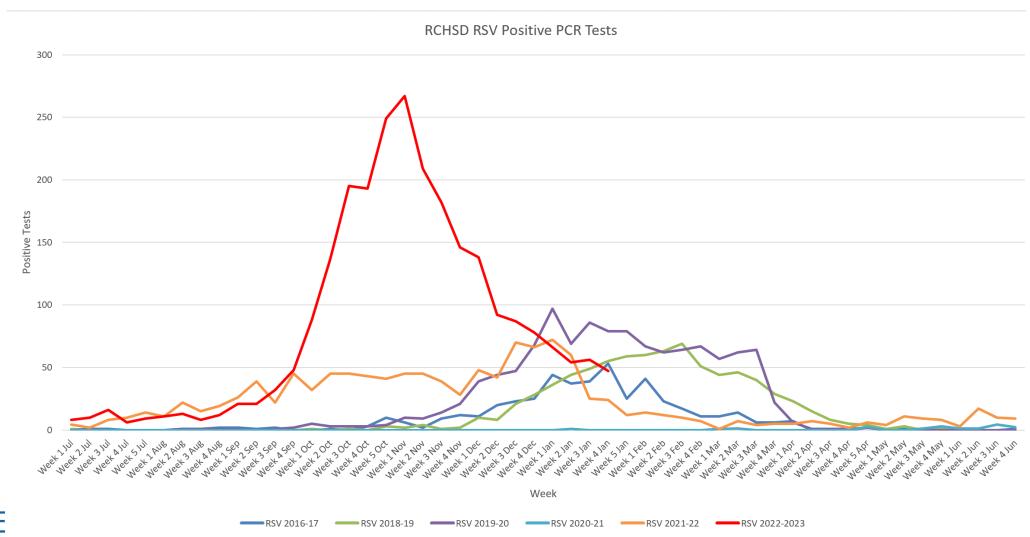
Pediatric Mortality

Source: CDC Fluview, week ending February 11, 2023





RSV IN SAN DIEGO

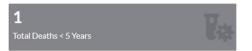


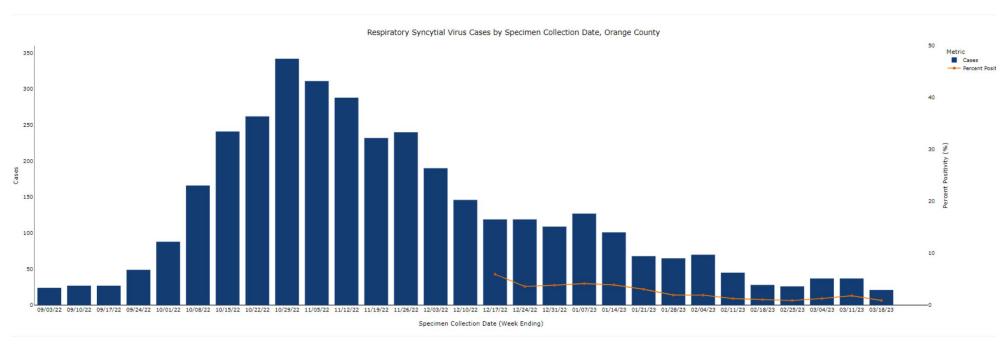


RSV IN ORANGE COUNTY

For week 11 (ending 3/18/23):

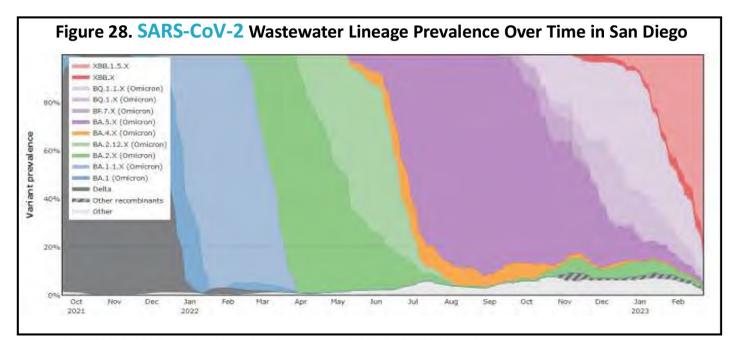






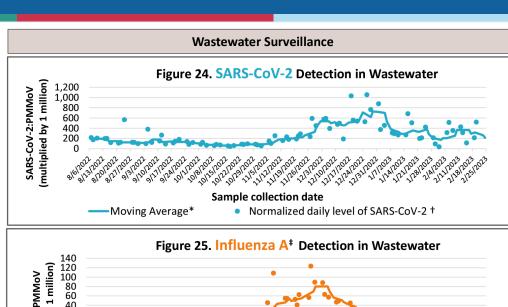


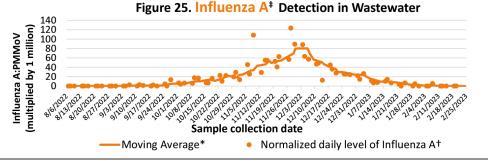
WASTEWATER (SAN DIEGO)

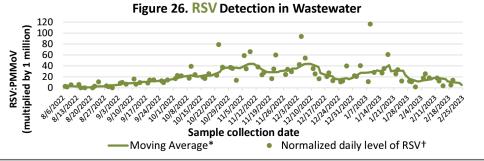


Source: SARS-CoV-2 variant prevalence in wastewater was generated by the SEARCH consortia (https://searchcovid.info/dashboards/wastewater-surveillance/).







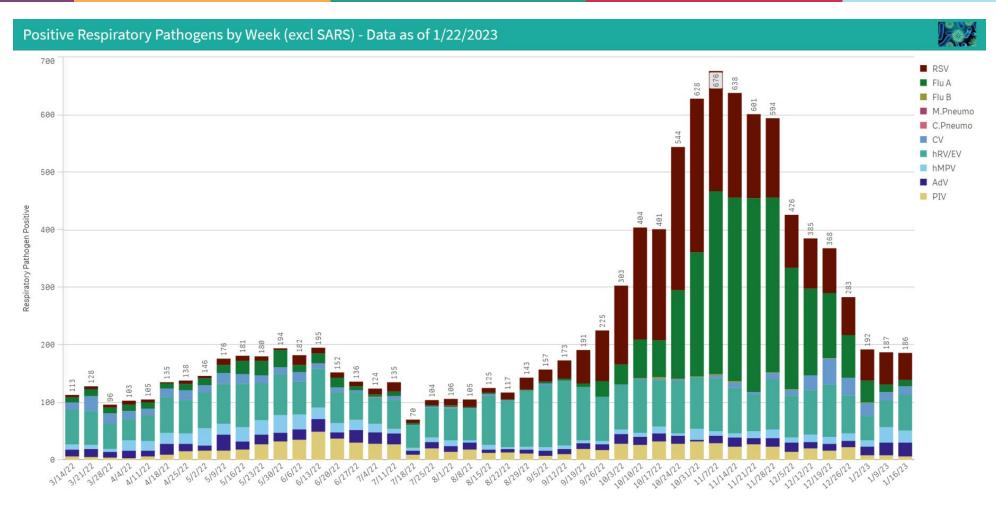


Data provided by Wastewater SCAN: https://wastewaterscan.org/

^{*}Calculated by taking the average of the 5 samples centered around a date after excluding the highest and lowest values.

[†]Data are normalized to a common, harmless plant virus that is consumed when people eat called pepper mild mottle virus (PMMoV).

NON SARS CO-V2 VIRUSES IN SAN DIEGO





INFO ON OTHER INFECTIONS

Figure 4. Select Enteric Infections by Month March 2022 – February 2023

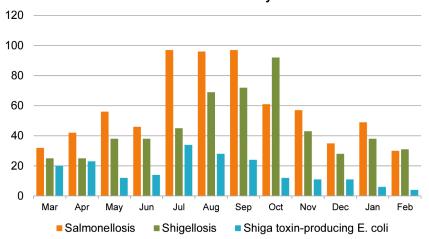
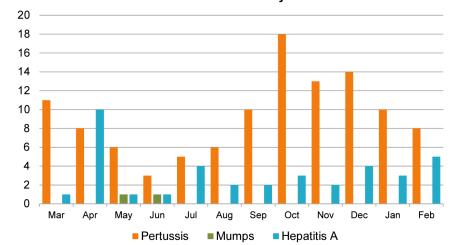
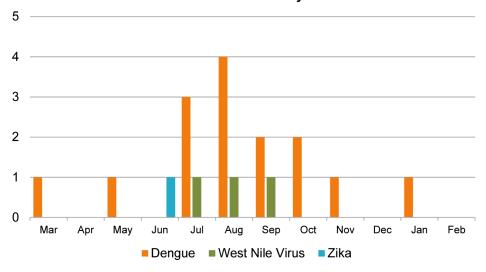


Figure 5. Select Vaccine-Preventable Infections by Month March 2022 – February 2023



PROJECT FIRSTLINE CDC's National Training Collaborative for Healthcare Infection Prevention & Control

Figure 6. Select Vector-Borne Infections by Month March 2022 – February 2023



PROJECT FIRSTLINE





Introduction to Reservoirs: Where Germs Live Training Toolkit

Reservoirs Review





INFECTION CONTROL EDUCATIONAL MATERIALS



Videos and Social Media Graphics



Interactive Resources



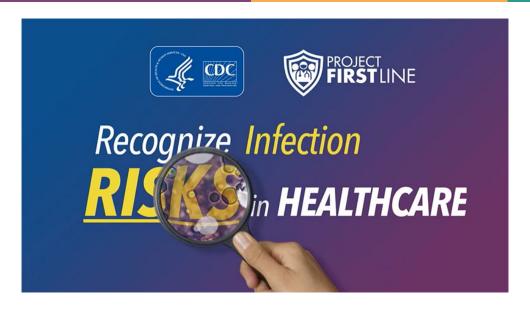
Print Materials and Job Aids



Training Toolkits



VIDEOS AND SOCIAL MEDIA CONTENT



Hundreds of millions of germs live on our skin. Germs on your skin, especially your hands, can get onto surfaces and other people, including your patients. Recognize the risks. Take action to stop the spread of germs. Learn more at CDC.GOV/PROJECTFIRSTLINE PROJECT FIRSTLINE

Gifs

Recognize Infection Risks in Healthcare

for Healthcare Infection Prevention & Contro

View on YouTube [Video – 4:55]external icon

Facebook image icon[JPG]

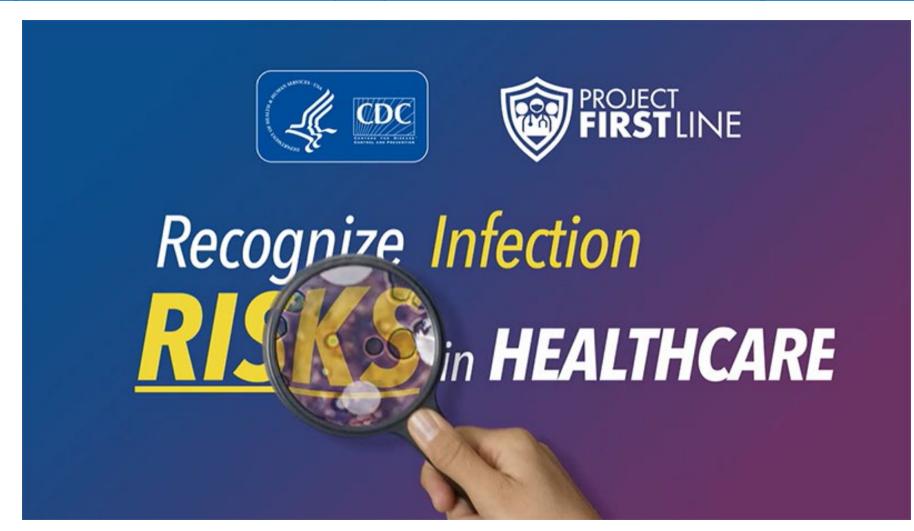




VIDEOS AND SOCIAL MEDIA CONTENT

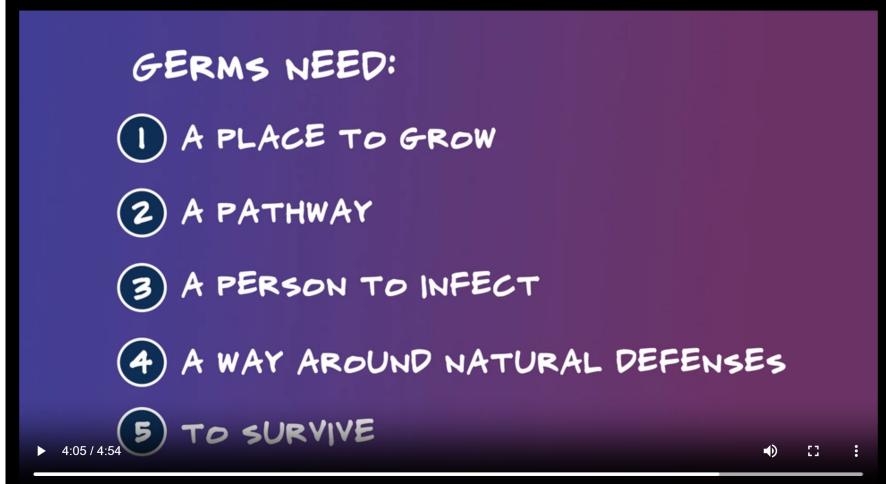
https://www.cdc.gov/infectioncontrol/projectfirstline/videos/RecognizeRisks-

LowRes.mp4





KEY POINTS





INTERACTIVE RESOURCES

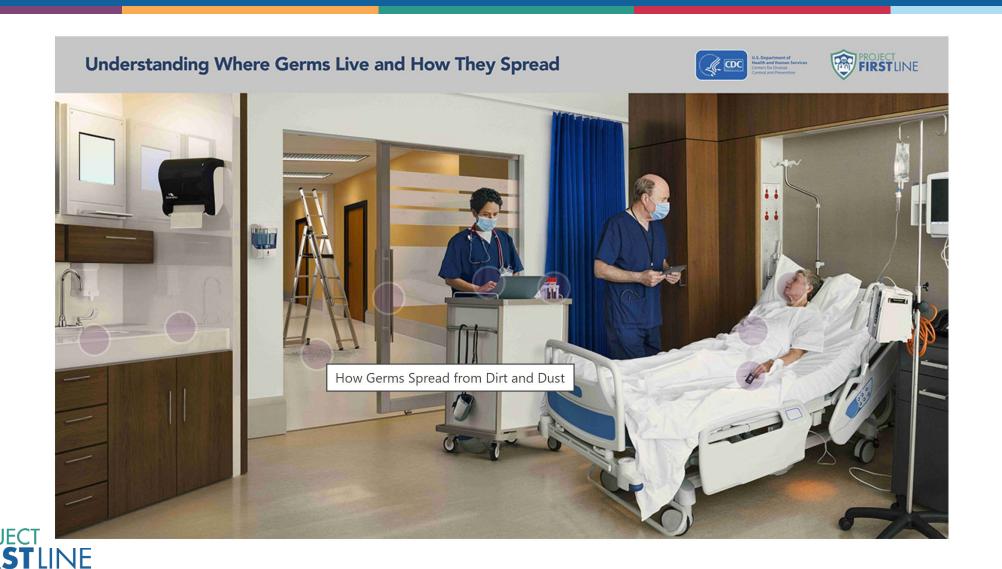




https://www.cdc.gov/infectioncontrol/projectfirstline/healthcare/interactive-Infographic.html

INTERACTIVE RESOURCES

CDC's National Training Collaborative for Healthcare Infection Prevention & Control



INTERACTIVE RESOURCES

Dirt and dust are reservoirs for germs.

How Germs Spread from Dirt and Dust

- Germs live in dirt and soil. Most of the time they aren't a problem for healthy people but can cause serious illness in people with weakened immune systems.
- Building construction can send dirt and the germs in it into the air, which can then get inside a healthcare facility.
- Smaller construction and maintenance projects inside a building – like taking out parts of a wall, removing ceiling tiles, or renovating a room – can also create dust that has germs in it.

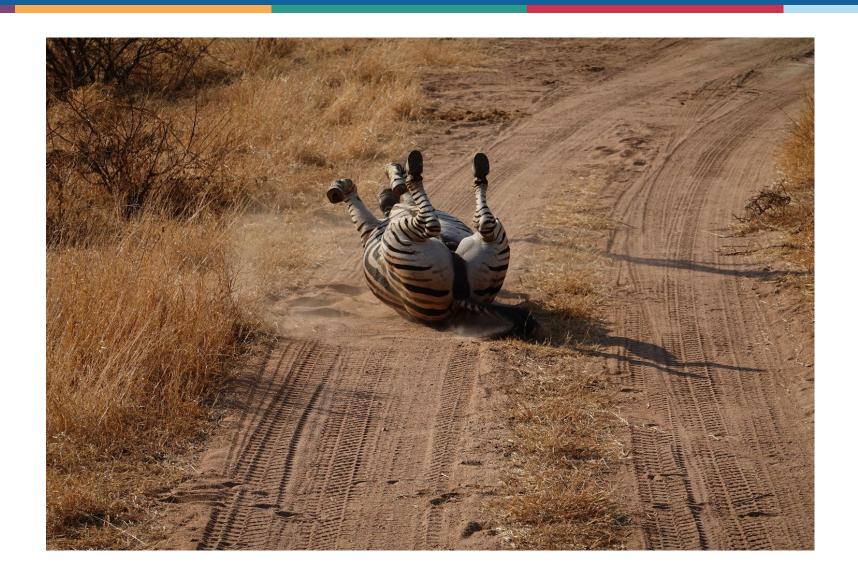


Infection Control Actions

- Cleaning and disinfection
- Ventilation
- Using barriers and other types of construction containment
- Hand hygiene





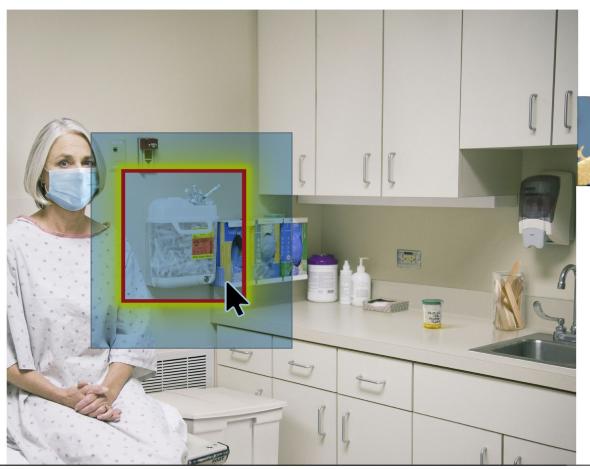




What's Wrong with this PictureOutpatient Exam
Room

https://www.cdc.gov/infectioncontro rojectfirstline/healthcare/interactive Outpatient.html





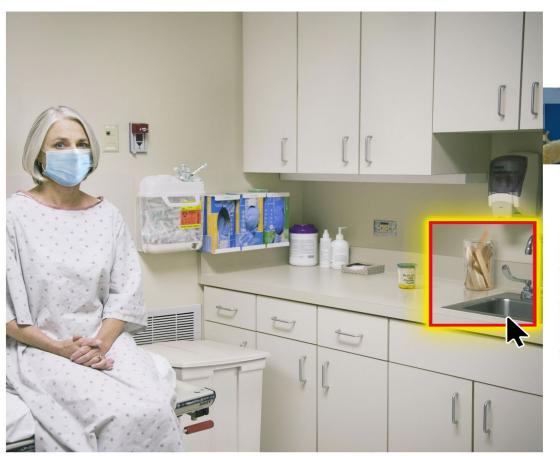
Overflowing Sharps Container



When sharps containers are overfilled, there is greater risk of accidentally getting poked with a dirty needle or sharp instrument. Remove or replace frequently-used sharps containers often, and before they become too full.



What's Wrong with This Picture? Outpatient Exam Room



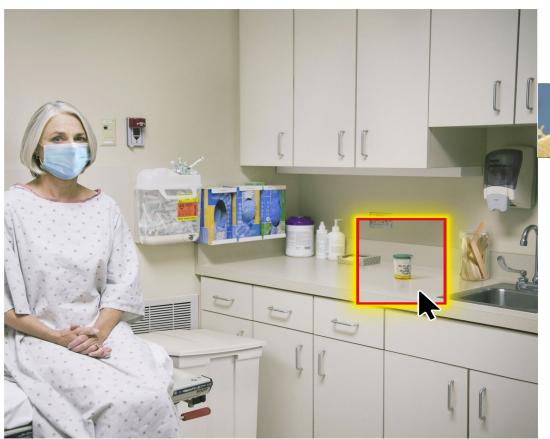
Placing Supplies Close to the Sink



Tap water is clean, but it is not sterile. Places that are frequently wet with tap water or sprayed by tap water, like sinks and the counters around sinks, can be a risk for germs in water to spread. That's why it's important to keep healthcare supplies away from water.



What's Wrong with This Picture? Outpatient Exam Room



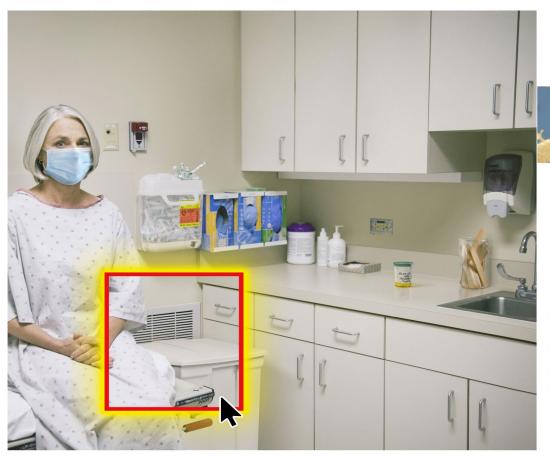
Urine Specimen Without a Biohazard Bag



When a sample from a patient is collected, body fluids and germs can easily get on the outside of the container and spread. These samples should be placed in a biohazard bag to prevent the spread of germs.



What's Wrong with This Picture? Outpatient Exam Room



Blocking a Vent



A blocked vent can decrease the air handling system's ability to replace the air in a room with new, clean air.

If you see an air vent blocked by something mobile, like a chair or a trashcan, move the item to improve ventilation. If a vent is blocked by something else, like cabinets, notify a supervisor or the person in charge of the area.











https://www.cdc.gov/infectionco ntrol/projectfirstline/healthcare/ interactive-Nurses-Station.html

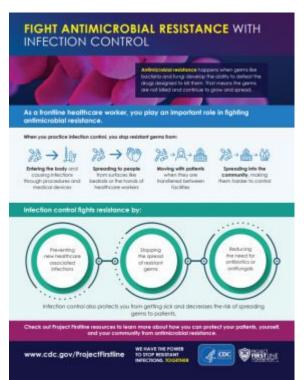
PRINT MATERIALS AND JOB AIDS

Posters



Thousands of Germs Poster 1

Fact Sheets



Infographics



Dirt and Dust Profile

Lock Screens





INFECTION CONTROL TRAINING TOOLKITS

• Use the toolkits to help your team learn to recognize infection risks throughout their workday.





INFECTION CONTROL TRAINING TOOLKITS

Firstline's toolkits are easy to use and can be integrated into existing infection control training programs

Recognizing Risk Using Reservoirs Training Toolkit



Session 1:

What Does it Mean to Recognize A Risk?

<u>Session Plan: Recognizing Risk [PDF – 18 Pages]</u> Slide Set: Recognizing Risk [PPT - 22 Slides] Participant Booklet: Recognizing Risk

Session 2: **How Germs Make People Sick**

Session Plan: How Germs Make People Sick [PDF] 21 Pages]

Slide Set: How Germs Make People Sick [PPT – 25 Slides1

Participant Booklet: How Germs Make People <u>Sick</u>

INFECTION CONTROL MEASURES



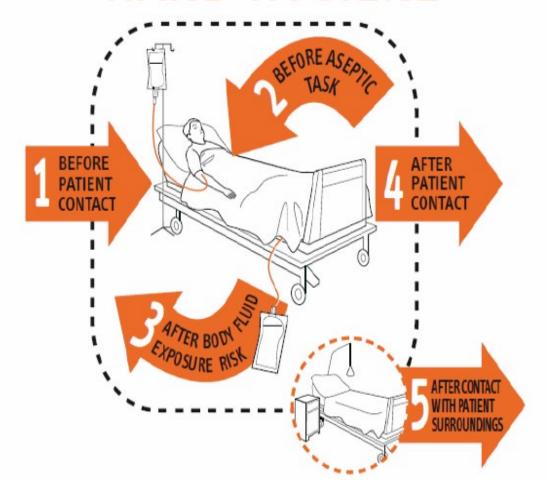


CORE INFECTION PREVENTION AND CONTROL PRACTICES FOR SAFE HEALTHCARE DELIVERY

- Hand hygiene
- Environmental cleaning and disinfection, including air exchange
- Injection and medication safety
- Risk assessment with use of appropriate personal protective equipment (e.g., gloves, gowns, face masks) based on activities being performed
- Minimizing Potential Exposures (e.g. respiratory hygiene and cough etiquette)
- Reprocessing of reusable medical equipment between each patient or when soiled

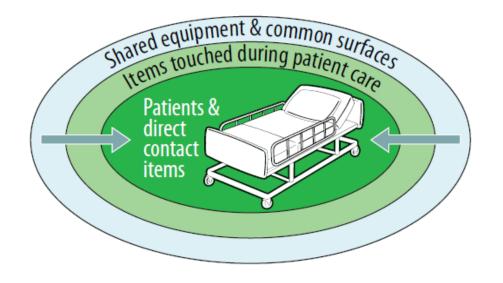


Your 5 moments for HAND HYGIENE





ENVIRONMENTAL CLEANING





Common high-touch surfaces include:

- bedrails
- •IV poles
- sink handles
- bedside tables
- •counters where medications and supplies are prepared
- edges of privacy curtains
- patient monitoring equipment (e.g., keyboards, control panels)
- •transport equipment (e.g., wheelchair handles)
- •call bells
- doorknobs
- light switches

AIR CHANGES/HOUR (ACH) AND TIME REQUIRED FOR AIRBORNE-CONTAMINANT REMOVAL BY EFFICIENCY

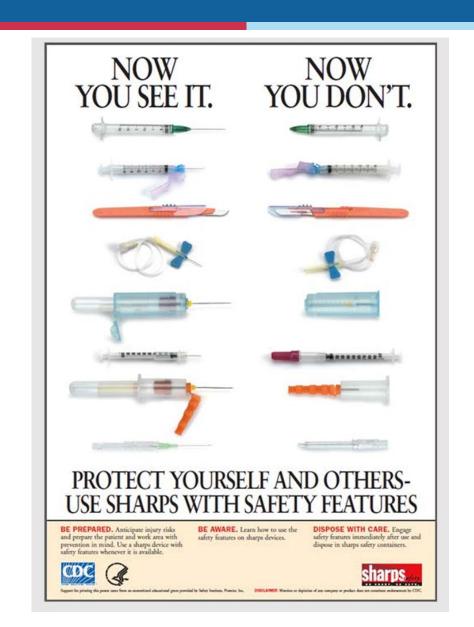
ACH § ¶	Time (mins.) required for removal 99% efficiency	Time (mins.) required for removal 99.9% efficiency
2	138	207
4	69	104
6+	46	69
8	35	52
10 ⁺	28	41
12+	23	35
15⁺	18	28
20	14	21
50	6	8



INJECTION AND MEDICATION SAFETY







USING APPROPRIATE PPE

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific

1. GOWN

- · Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



- · Secure ties or elastic bands at middle of head and neck
- · Fit flexible band to nose bridge
- · Fit snug to face and below chin
- · Fit-check respirator

3. GOGGLES OR FACE SHIELD

· Place over face and eyes and adjust to fit



4. GLOVES

Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- . Keep hands away from face
- · Limit surfaces touched
- . Change gloves when torn or heavily contaminated
- · Perform hand hygiene



HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) **EXAMPLE 1**

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. Remove all PPE before exiting the patient room except a respirator, if worn. Remove the respirator after leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- · If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container



- Outside of goggles or face shield are contaminated!
- · If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

3. GOWN

- · Gown front and sleeves are contaminated!
- · If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- · Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container
- 5. WASH HANDS OR USE AN **ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING** ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER **REMOVING ALL PPE**

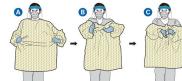


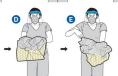
HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) **EXAMPLE 2**

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Remove all PPE before exiting the patient room except a respirator, if worn, Remove the respirator after leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved
- While removing the gown, fold or roll the gown inside-out into
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste





2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- · If your hands get contaminated during goggle or face shield removal,
- immediately wash your hands or use an alcohol-based hand sanitizer Remove goggles or face shield from the back by lifting head band and
- without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container



3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container
- 4. WASH HANDS OR USE AN **ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE**



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS **BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE**







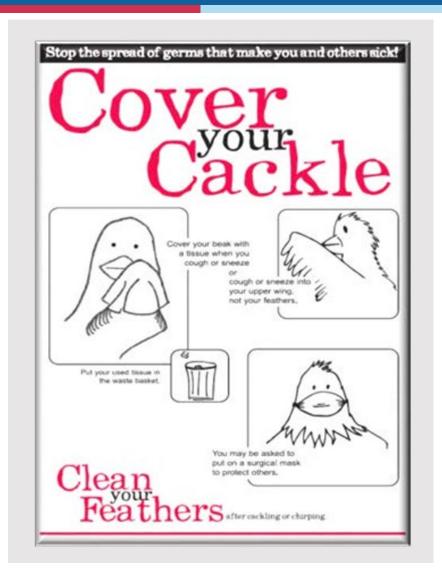
MINIMIZE POTENTIAL EXPOSURES

Aerosol



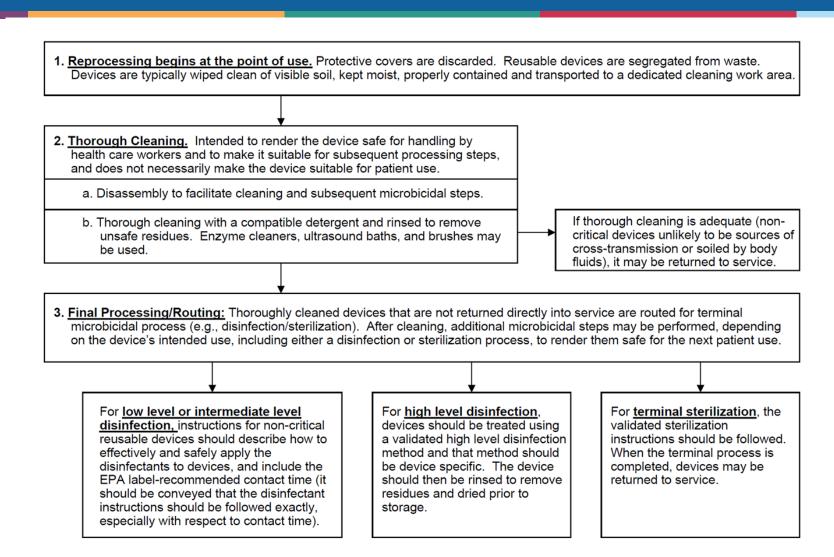
Fomites







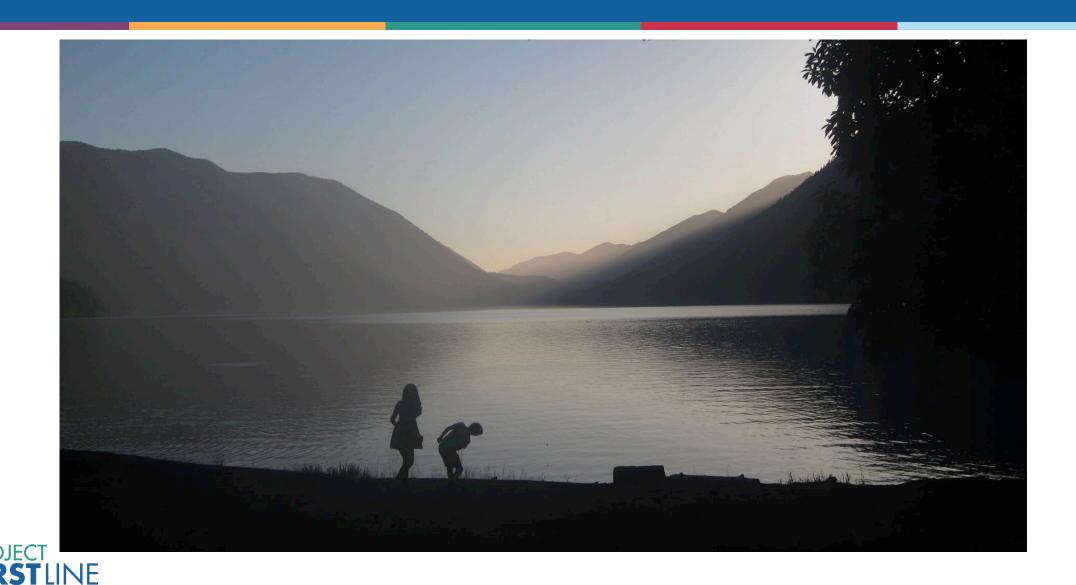
OVERVIEW OF MEDICAL DEVICE REPROCESSING (FDA)





SUMMARY

CDC's National Training Collaborative for Healthcare Infection Prevention & Control



SUMMARY

- We reviewed--Why Project Firstline- was created and the recent trends in Hospital Acquired Infections
- Review Respiratory Infection trends (COVID, Influenza, RSV)essentially back to pre-pandemic levels
- Viewed examples of Project Firstline Resources (available at the CDC website) to help health care personnel understand the areas of infection control risk
- Review Infection Prevention actions that can help address these risk issues shown Project Firstline



RECOGNIZE THE RISKS. PROTECT YOUR PATIENTS.







How to Get Involved and Feedback

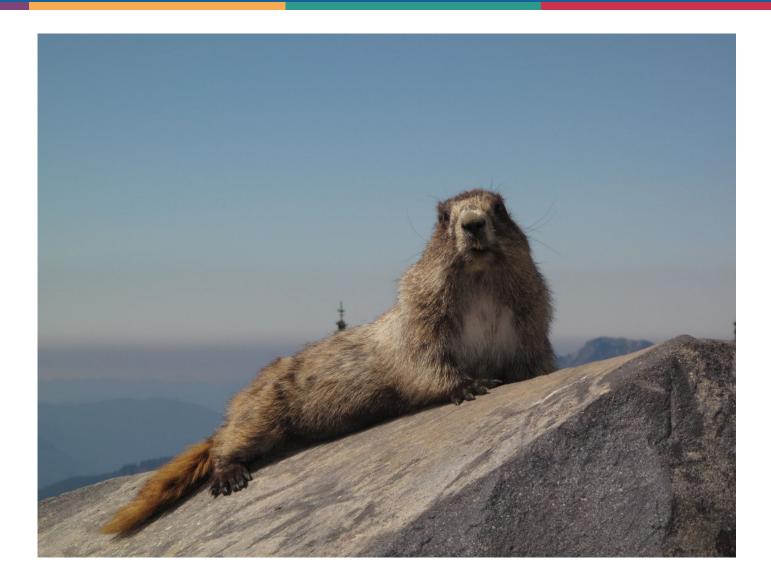
- Project Firstline on CDC.gov:
 https://www.cdc.gov/infection-control/projectfirstline/index.html
- CDC's Project Firstline on Facebook: https://www.facebook.com/CDCProjectFirstline
- CDC's Project Firstline on Twitter: https://twitter.com/CDC Firstline
- Project Firstline Inside Infection Control on YouTube: https://www.youtube.com/playlist?list=PLvrp9iOILTQZQG tDnSDGViKDdRtIc13VX
 - To sign up for Project Firstline e-mails, click here:

 https://tools.cdc.gov/campaignproxyservice/subscriptio
 ns.aspx?topic_id=USCDC_2104

- Project Firstline feedback form: <u>https://www.cdc.gov/infectioncontrol/pdf/projectfirstline/TTK-ParticipantFeedback-508.pdf</u>
- AAP-OC PFL Page
 - https://www.aapoc.org/project-firstline-cdcsnational-trainingcollaborative-forhealthcare-infectionprevention-control/
- AAP-CA3 PFL Page
 - https://aapca3.org/projectfirstline/



QUESTIONS?





THANK YOU



