

Infection Control and Prevention

2025 Annual Education - All Staff



Learning Objectives

Upon completion of this module, the learner should be able to:

- Describe the impact of common Hospital Acquired Infections (HAIs) on the healthcare system.
- Employ Infection Control methods to minimize HAIs
- Use proper hand hygiene technique
- Comply with standard and transmission-based precautions
- Describe the goals of the antimicrobial stewardship program
- Describe bloodborne pathogens and how to decrease exposure risks



Infection Prevention Team

Associate Chief of Operations:

Chris Abe, BSN, RN, CIC, HEM

Epidemiologist:

Alice Pong, MD, CIC

Director:

Megan Medina, MSN, MBA, RN, CIC

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Antimicrobial Stewardship:

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We can be reached at any time by web-paging:

Infection Control, Group (business hours) **Infection Control, On call** (night & weekends)

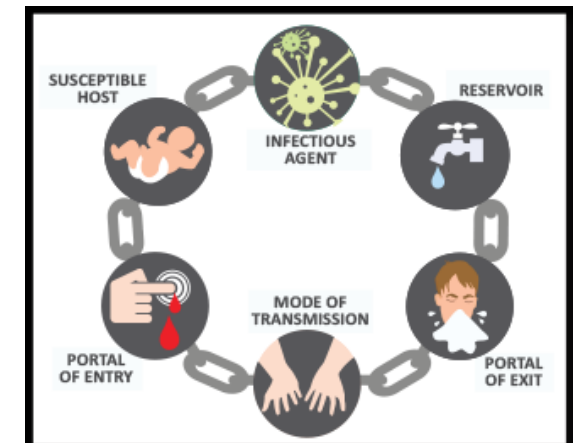
Role of the Infection Control Department

Our goal is to keep our patients, visitors, employees, physicians, and students safe and free from infection.

To prevent infections, it's crucial to break one or more links in the chain of infection. Here are some effective strategies:

- ***Hand Hygiene:*** Regular handwashing with soap and water or using hand sanitizer
- ***Vaccination:*** Stay up to date with recommended vaccines
- ***Respiratory Hygiene:*** Cover coughs and sneezes with a tissue or elbow
- ***Isolation:*** Keep infected individuals away from others
- ***Use of Personal Protective Equipment (PPE):*** Wear masks, gloves, and other protective gear
- ***Environmental Cleaning:*** Disinfect surfaces & equipment

Break the Chain of Infection!



*Watch the video to learn more about
infection control risks in health care*

[Infection Control Risks](#)

[Click Here](#)



Hospital Acquired Infections

- HAIs are infections that patients get while in the hospital for another condition
- Caused by bacteria, fungi, viruses, or other pathogens
 - Can be from the patient's own flora, transmitted person to person, or from contaminated surfaces or equipment
- Factors that contribute to HAI risk:
 - Central lines
 - Urinary catheters
 - Surgery
 - Transmission between patients and healthcare workers
 - Improper cleaning and disinfection
 - Over or inappropriate use of antibiotics



Just The Facts

More than 722,000 Healthcare Acquired Infections (HAI) occur annually in the U.S

Annually, 75,000 people in the US die with an HAI (direct or indirect cause of death)

Approximately 1 in 31 patients in the US has at least one infection associated with their hospital care

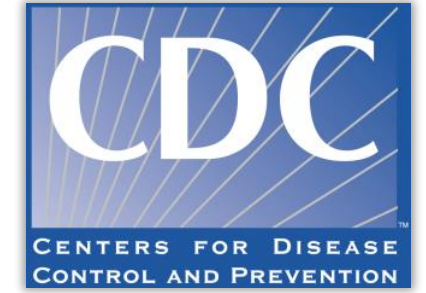
Magill, S. S., Edwards, J. R., Bamberg, W., Beldavs, Z. G., Dumyati, G., Kainer, M. A., & ... Fridkin, S. K. (2014). Multistate point-prevalence survey of health care-associated infections. *The New England Journal Of Medicine*, 370(13), 1198-1208.

Average Cost of Common HAIs

- Central line associated bloodstream infections (CLABSI): \$48,108
- Ventilator Associated Pneumonia (VAP): \$47,238
- Catheter Associated Urinary tract infections (CAUTI): \$13,793
- Surgical site infections: \$28,219
- *Clostridium difficile* infections: \$17,260

It is estimated that HAIs cost \$28 to \$45 **billion** each year, but the monetary cost isn't the only downside. Length of stay & mortality rates rise, and patient wellbeing & satisfaction are negatively impacted.

Estimating the Additional Hospital Inpatient Cost and Mortality Associated With Selected Hospital-Acquired Conditions. Content last reviewed November 2017. Agency for Healthcare Research and Quality, Rockville, MD. <https://www.ahrq.gov/hai/pfp/haccost2017-results.html>



HAIs are PREVENTABLE!

- Research shows that when healthcare teams are aware of infections and take steps to prevent them, some targeted HAIs can decrease by more than **70%**
- Prevention takes a conscious effort by everyone, working together, to protect patients and save lives

Centers for Disease Control and Prevention. National and State Healthcare Associated Infections: Progress Report.
<https://www.cdc.gov/HAI/pdfs/progress-report/hai-progress-report.pdf>

Impact of Hand Hygiene



Hand hygiene

is the most important infection prevention measure in the hospital



Most common mode of transmission of pathogens is **on the hands** of healthcare workers



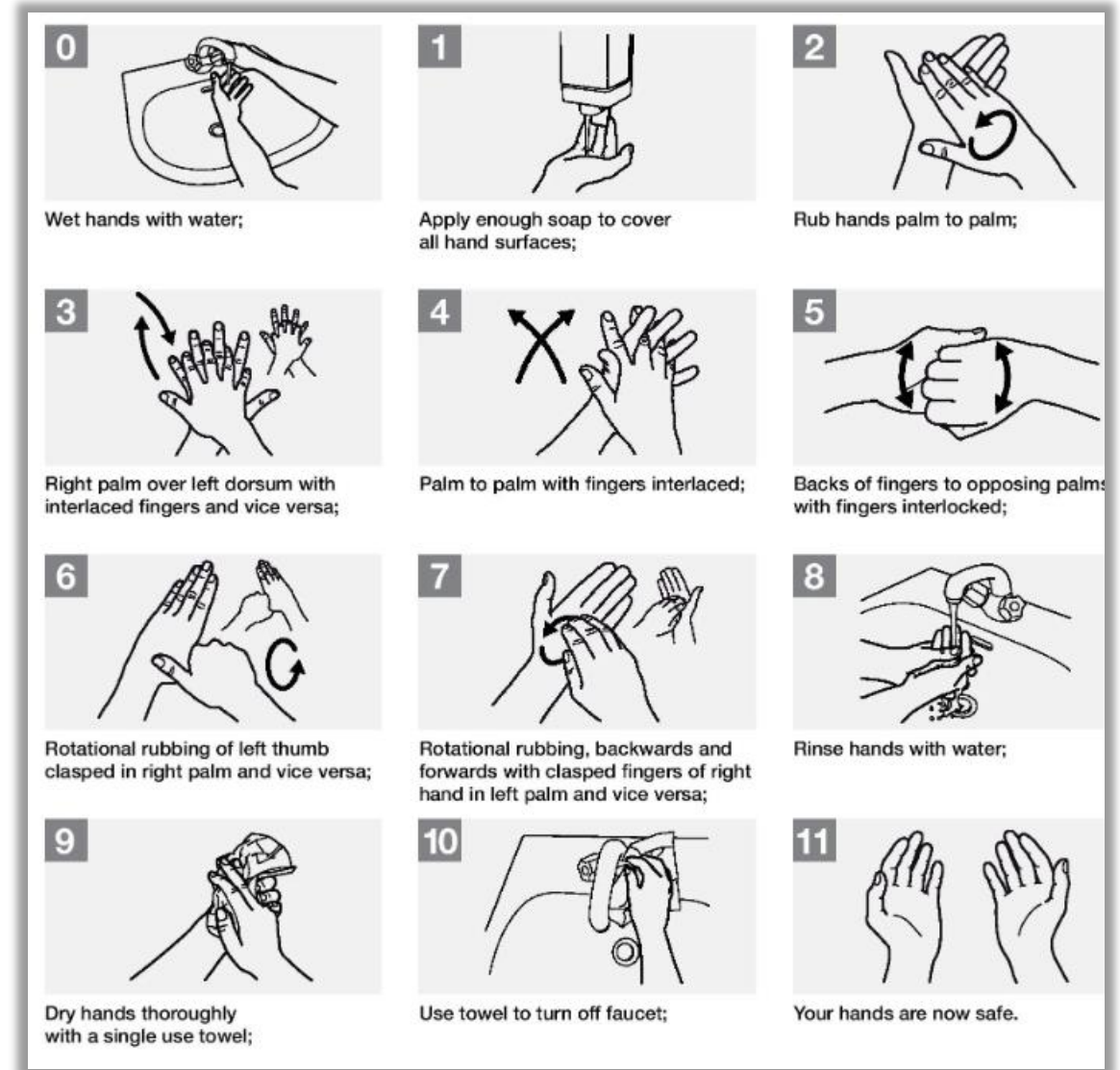
20,000 HAIs are preventable just by doing hand hygiene!

Despite knowing the importance of doing hand hygiene, studies show that some healthcare providers practice hand hygiene **less than half** of the times they should.

Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Healthcare Quality Promotion (DHQP) (2019). Hand Hygiene in Healthcare Settings. <https://www.cdc.gov/handhygiene/science/index.html>

Technique Matters

- All staff in patient care areas must use alcohol-based sanitizer *OR* soap and water to routinely disinfect hands
- Hand washing with soap and water is **required** when caring for patients on enhanced contact precautions (*C. difficile*, adenovirus, norovirus, etc.), and when hands are visibly soiled



Respiratory Hygiene and Cough Etiquette

Prevent the spread of respiratory infections:

- **Cover Mouth and Nose:** Use a tissue or your elbow to cover your mouth and nose when you cough or sneeze.
- **Dispose of Tissues Properly:** Throw used tissues into the trash.
- **Wear a Mask:** Those aged 2 and older with respiratory symptoms should wear a mask to prevent the spread of droplets to others. Infection Control recommends that employees mask during all patient care.
- **Hand Hygiene:** Wash hands with soap and water or use hand sanitizer after coughing, sneezing, or touching your face.
- **Avoid Touching Your Face:** Do not touch your eyes, nose, or mouth with unwashed hands to avoid getting pathogens into your body.
- **Appropriate Patient Placement:** Follow current hospital protocols for symptomatic patients (i.e., designated waiting areas).





Do You Feel Sick?

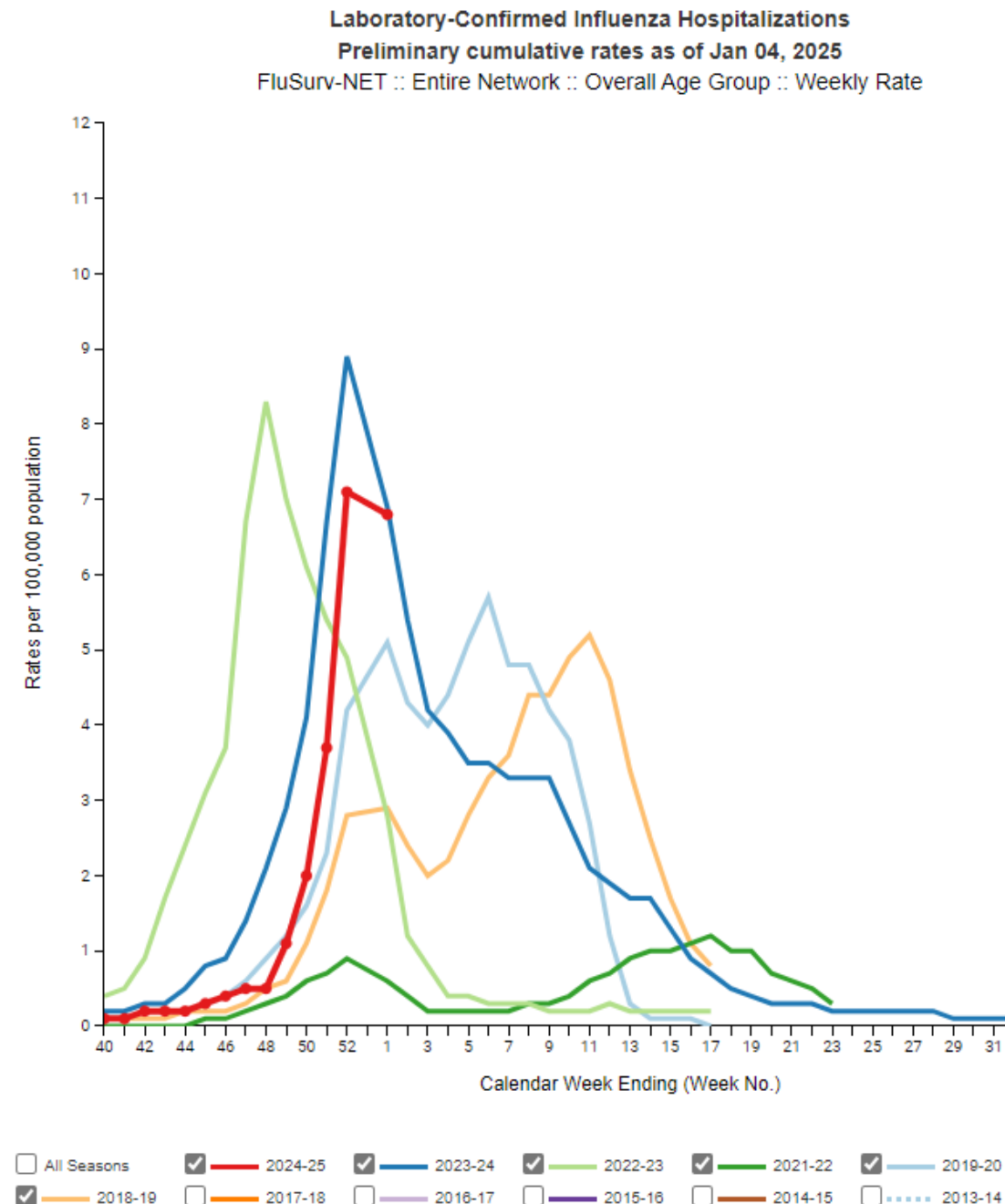
If you have any of the following symptoms in the last 24 hours:

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

Report to your leadership and stay home!

Influenza & Immunization

- Our employee immunization rate for influenza is >99%
- Annual flu immunization is an important way to reduce transmission and acquisitions of flu from healthcare workers and patients
- For more details see [Influenza Immunization Program](#)



COVID and Respiratory Illnesses

Employee Health

- Take care of your body - get rest and eat healthy
- If you are sick, do not come to work- stay home and get better
- Coming to work sick exposes your coworkers and patients
- If you develop symptoms at work, notify your leader and go home
- Wash your hands frequently
- If you are COVID positive contact your leader to discuss when you can return to work
- Follow guidance from Infection Control
 - Watch for emails of updates as these protocols can change

Patient Care

- Wear proper PPE every time!
- Follow all guidelines for your work area for patient care
- COVID resources are available on the SharePoint home page → COVID Information → [COVID manual](#)

COVID-19 Resources

<https://rchsdorg.sharepoint.com/> **1**

The screenshot shows the Rady Children's Intranet interface. The top navigation bar includes links for Home, About Us, HR & Benefits, Departments, Clinical Resources, Policies/Forms, and Frequently Accessed Links. The 'Policies/Forms' dropdown menu is open, showing 'Policies & Procedures Manual' and 'Forms'. The 'COVID-19 Manual' is highlighted in the dropdown menu. The 'Frequently Accessed Links' section includes links for Employee Locator, Physician Directory, Web Paging & On-Call, Cortex Secure..., CARES, Diversity Equity and..., Insight Central, IT Downtimes, Learning Center, Occupancy, Supply Shortage, and Telehealth. The 'Hospital Policy Manual' section lists various manuals, including the 'COVID-19 Manual'.

2

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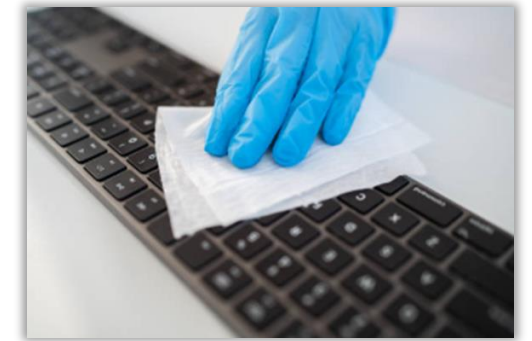
<https://rchsd.ellucid.com/manuals/binder/420>



High touch surfaces can become contaminated and increase the risk of transmission of bacteria, viruses, and fungi.

Environmental Cleaning

- Wipe down high touch areas and keyboards at least once a shift
- Do not use tape to secure items to surfaces
- No eating in patient care areas
- Covered drinks are allowed at workstations (never in patient rooms)
- No purses/backpacks in nursing stations or on counters in inpatient areas
 - Use appropriate designated locations in your area
- Minimize clutter so EVS can effectively clean
- Report any ceiling tile stains or sink backups promptly to POM



Low-Level Disinfection

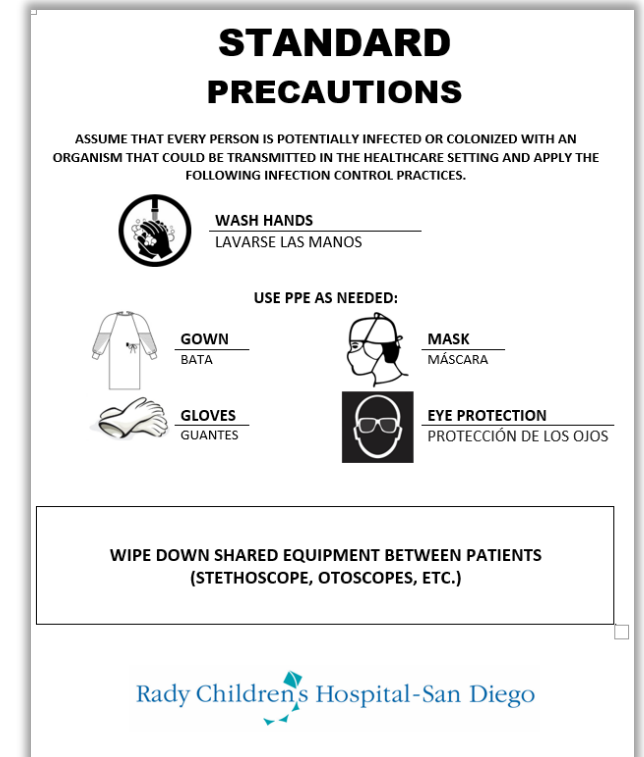


Contact time: Amount of time for a specific product to kill organisms, also called **wet** time or **kill** time. The product needs to stay wet on the surface of the item for the entire contact time to be effective.

Standard and Transmission- Based Precautions

Standard Precautions

- Perform hand hygiene
- Follow respiratory hygiene/cough etiquette
- Ensure appropriate patient placement
- Wear a surgical mask and eye protection with potential for splash or spray
- Use PPE when there is an expectation of possible exposure to infectious material/bodily fluids
- Properly handle, clean, and disinfect patient care equipment and instruments
- Clean and disinfect the environment
- Handle textiles and laundry carefully
- Follow safe injection practices and handling of needles and other sharps

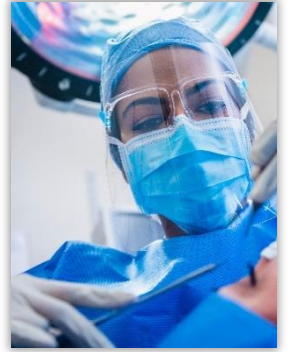


Transmission-based Precautions

- Used in addition to Standard Precautions
- Used when Standard Precautions may be insufficient to prevent transmission
- Used for patients:
 - Known to be infected
 - Suspected of being infected
 - Colonized with certain microorganisms
- Only the precautions needed to interrupt transmission of the infectious agent are used
- Based on CDC guidelines (see [SM 9-11 Standard and Transmission-based precautions](#))
- Includes Contact, Droplet, and Airborne Precautions



Personal Protective Equipment



Occupational Safety and Health Administration (OSHA)

- Issues workplace health and safety recommendations regarding PPE
- Requires employers to:
 - Provide adequate PPE for employees
 - Ensure PPE is disposable, or, if reusable, that it is cleaned, laundered, repaired and stored after use
- Specifies when PPE is indicated

Center for Disease Control (CDC)

- Recommends when, what, and how to use PPE

Mask (*surgical and N95*)

- Surgical masks worn as appropriate, N95 for airborne precautions and COVID

Gloves

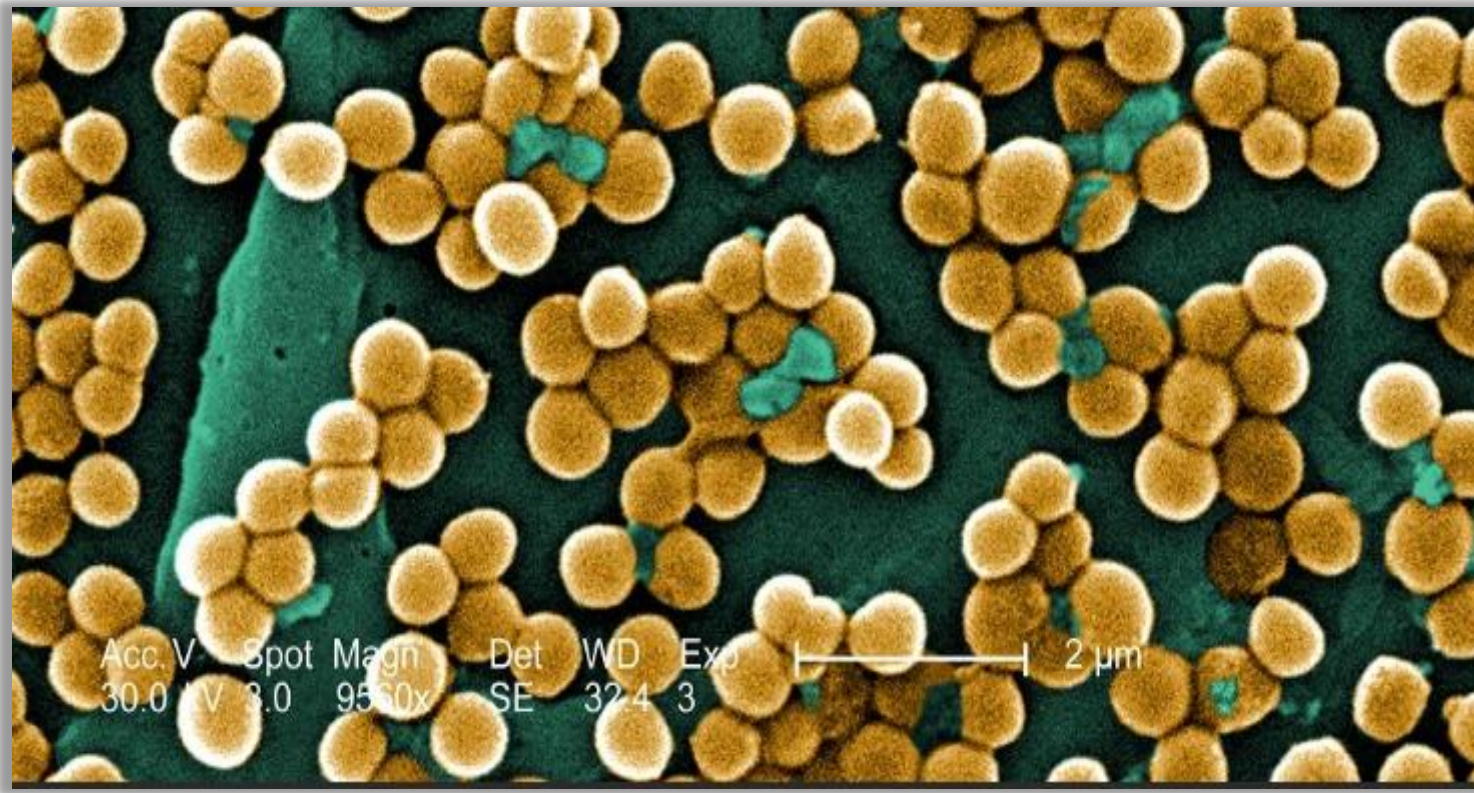
- Blood, body fluids, secretions, excretions, contaminated items, mucous membranes, and non-intact skin

Gown

- When healthcare worker's clothing/exposed skin may contact blood/body fluids, secretions, excretions, and contaminated surfaces

Eye protection (*goggles/face shield*)

- During patient-care activities that can generate splash or spray of blood, body fluids, secretions
 - i.e., suctioning, endotracheal intubation, and lumbar punctures



Multi Drug Resistant Organisms (MDRO) and Antimicrobial Stewardship

Multi Drug Resistant Organisms (MDROs)

Resistant to one or more classes of antimicrobial agents.

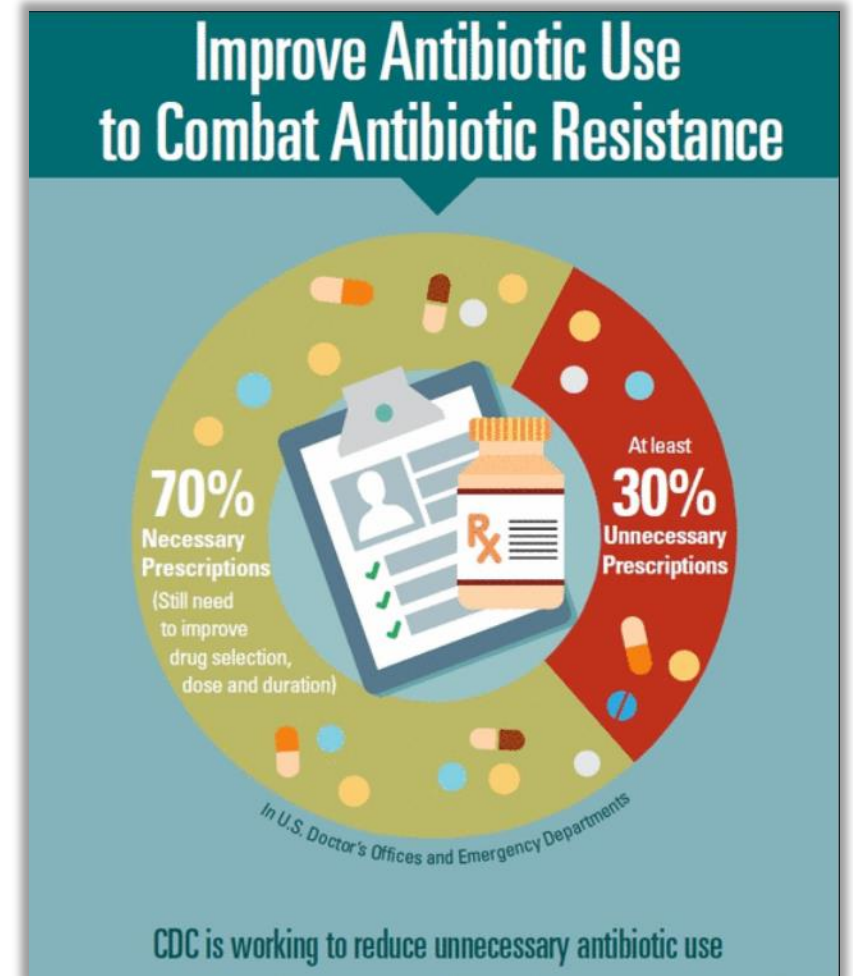
- Methicillin-Resistant *Staphylococcus aureus* (MRSA)
- Vancomycin-Resistant *Enterococci* (VRE)
- Extended Spectrum Beta Lactamase (ESBL) producing bacteria
- Carbapenem-Resistant *Enterobacterales* (CRE)
- Drug Resistant Gram-Negative organisms
- *Clostridioides difficile* (C. diff)
- *Burkholderia cepacia*

At Risk Patients	Prevention Strategies
<ul style="list-style-type: none">• Higher severity of illness• Chronic conditions - hemodialysis• Extended hospital or ICU stay• Prior antibiotic use• Transfers from acute/chronic care facilities• Poor compliance with Infection Prevention practices• Hospitalization outside the US	<ul style="list-style-type: none">• Accurate and prompt diagnosis and treatment of infection• Appropriate isolation of patient• Continued adherence to transmission-based precautions• Judicious use of antimicrobial agents (antimicrobial stewardship)

Antimicrobial Stewardship Goals at Rady Children's Hospital San Diego Region

1. Best patient outcome
2. Prevent antimicrobial resistance
3. Protect the patient's microbiome (healthy bacteria)

The Centers for Medicare and Medicaid Services (CMS) requires that all hospitals have an antimicrobial stewardship program (ASP).



Bloodborne Pathogens

Do you handle
needles at
work?

Needlestick accidents
are the most common
way that bloodborne
viruses are spread in
healthcare.



Recognize the risks.
Take action to stop the spread of germs.

Learn more at [CDC.GOV/PROJECTFIRSTLINE](https://www.cdc.gov/projectfirstline)

Bloodborne Pathogens



Pathogens found in blood and body fluids that can cause disease.

Commonly transmitted bloodborne diseases:

- Hepatitis B
 - Vaccine-preventable liver infection caused by the hepatitis B virus (HBV).
 - Spread when blood or other body fluids from an infected person enters the body of someone who is not infected.
- Hepatitis C
 - Liver infection caused by the hepatitis C virus (HCV). Spread through contact with blood from an infected person.
 - Most common transmission: sharing needles or other equipment used to prepare and inject drugs.
 - Can be a short-term illness or become a chronic infection.
- HIV (Human Immunodeficiency Virus)
 - A virus that attacks the body's immune system.
 - If not treated, can lead to AIDS (acquired immunodeficiency syndrome).
 - Currently no cure. Once people get HIV, they have it for life.
 - HIV can be controlled with proper medical care.

Bloodborne Pathogens

Potential routes of exposure:

- Needle sticks
- Punctures or cuts from dirty sharps or blades
- Direct contact of infected blood/body fluids with broken skin
- Splashing infected fluids in eyes, nose, and mouth

If exposed ...

- **Wash** injuries with soap and water
- **Flush** splashes to the nose, mouth or skin with water
- **Irrigate** eyes with clean water, saline or sterile irrigant
- **Seek** medical evaluation immediately
- **Complete a Safety Report, notify your supervisor, and notify Occupational Health and Safety (OHS)**



Bodily Fluid Exposures

How can I protect myself?

- Avoid sharps when safer alternatives are available
- Use and activate sharps safety devices
- Wear personal protective equipment: gloves, gowns, face/eye protection when splash or spray is possible
- Properly dispose of used sharps
- Avoid recapping needles



Infection Control and Construction

IC provides an Infection Control Risk Assessment (ICRA) for every project.

- The ICRA outlines the measures used to protect patients and employees from potential harm due to that project.
- Must be posted at every project.
 - Usually on the containment.
- Containment must remain closed.
 - Zipper may only be opened when workers are entering/exiting.
- If a HEPA filter is used, it must remain **ON** at all times.
 - They can be loud but are needed to filter the air before it leaves the containment area.
- Sticky mats used to catch dust at the exit.
- Once the project is completed, the space must be terminally cleaned before it is returned to use.
- Questions about an ICRA? Contact infection control or POM.

Rady Childrens		Infection Control Risk Assessment (ICRA) and Environmental Health and Safety Risk Assessment		
Project Name		RELAMPING ACP OR RM 3 & 5		
Permit Number		Date ICRA Created 2.8.24		
Location of Work Activity		Campus MAIN Building(s)/Floor(s) ACP Room(s) RM 3 & 5		
Project Start Date 2.8.24 @ 3 A.M.		Estimated Duration 1 DAY		
Estimated Completion Date 2.8.24				
Contractor Performing Work				
Contact Person/Supervisor		Phone 225511		
Permit Requested By		Phone 225518		
Permit Authorized By		Phone		
Class of Precautions				
Class of Precautions/ICRA Table (for reference only)				
PATIENT RISK GROUP	CONSTRUCTION ACTIVITIES			
	Type A	Type B	Type C	Type D
LOW Risk Group	I	II	III*	III*
MEDIUM Risk Group	I	II	III*	IV
HIGH Risk Group	I	III	IV	V
HIGHEST Risk Group	III	IV	V	V
Proposed ICRA level (from PCRA): ICRA Level III				
Infection control permit and approval will be required when Class of Precautions III (Type C) and all Class of Precautions IV or V are necessary.				
Environmental conditions that could affect human health, such as sewage, mold, asbestos, gray water, and black water will require Class of Precautions IV for LOW and MEDIUM Risk Groups and Class of Precautions V for HIGH and HIGHEST Risk Groups.				
*Type C (Medium Risk groups) and Type D (Low Risk Groups) work areas (Class III precautions) that cannot be sealed and completely isolated from occupied patient care spaces should be elevated to include negative air exhaust requirements as listed in Class IV Precautions.				
Rady Childrens		Infection Control Risk Assessment (ICRA) and Environmental Health and Safety Risk Assessment		
Project Name: RELAMPING ACP OR RM 3 & 5		Permit #:		
Minimum Required Infection Control Precautions by Class Before and During Work Activity				
INTERIM INFECTION CONTROL MEASURES: Upon completion of project review, all items checked are completed.				
Check all that apply during initial assessment.				
Mitigation Activities				
Class I	<input type="checkbox"/> Machinery/Equipment brought in from outside should be cleaned and covered prior to entry into construction site. <input type="checkbox"/> Execute work by methods to minimize raising dust from construction operations. <input type="checkbox"/> Immediately replace ceiling tile displaced for visual inspection.	<input type="checkbox"/> Wet mop and/or vacuum before leaving area. <input type="checkbox"/> Utilize Portable Cube for above ceiling inspection or noninvasive activities. <input type="checkbox"/> Ensure HEPA filtration is on and inspect unit at each setup.		
Class II	<input type="checkbox"/> Machinery/Equipment brought in from outside should be cleaned and covered prior to entry into construction site. <input type="checkbox"/> Provide active means to prevent airborne dust from dispersing into the atmosphere. <input type="checkbox"/> Seal windows and unused doors with vinyl tape. <input type="checkbox"/> Block off and seal air vents. <input type="checkbox"/> Place tacky mat at entrance and exit of work areas. <input type="checkbox"/> Water mist work surfaces to control dust. <input type="checkbox"/> Remove or isolate HVAC system in areas where work is being performed.	<input type="checkbox"/> Verify that patient care equipment and supplies are removed or protected from dust exposure. <input type="checkbox"/> Wipe surfaces with disinfectant. <input type="checkbox"/> Contain construction waste and transport in tightly covered containers. Cartwheels will be cleaned before exiting the construction area. <input type="checkbox"/> Wet mop and/or vacuum with HEPA-filtered vacuum before leaving work area. <input type="checkbox"/> Upon completion, restore the HVAC system where work was performed. <input type="checkbox"/> Notify EVS to Terminal Clean area when work is complete.		
Class III, IV, and V	<input checked="" type="checkbox"/> Machinery/Equipment brought in from outside should be cleaned and covered prior to entry into construction site. <input type="checkbox"/> Isolate HVAC system in area where work is being done to prevent contamination of duct system. Seal unused doors with tape. <input type="checkbox"/> Complete all critical barriers (sheetrock, fire-rated stamped Coroplast sheets, fire-rated stamped plywood, fire-rated stamped plastic 6 mil) to seal area from non-work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA-filtered vacuum for vacuuming prior to exit) before construction begins. <input type="checkbox"/> Seal holes, pipes, conduits and punctures appropriately. <input type="checkbox"/> Always maintain negative air pressure within work sites using HEPA-equipped air filtration units. <input checked="" type="checkbox"/> Contain construction waste and transport in tightly covered and sealed containers before transporting. Cartwheels will be cleaned before exiting from the construction area. <input type="checkbox"/> Construct anteroom and require all personnel to pass through so they can be vacuumed using a HEPA-filtered vacuum before leaving the work area, or they can wear cloth or paper coveralls that are removed each time they leave the work area.	<input checked="" type="checkbox"/> All personnel entering the work area are required to wear shoe covers. Shoe covers must be changed each time a worker exits the work area. <input type="checkbox"/> In collaboration with facility project manager, designate a traffic pattern for construction workers that avoids patient care areas, and a traffic pattern for clean or sterile supplies and equipment that avoids the construction area. <input checked="" type="checkbox"/> Verify ventilation systems are working properly in adjacent areas. <input checked="" type="checkbox"/> Inspect barriers DAILY (type frequency). Confirm negative pressure by smoke, visual or gauge. <input type="checkbox"/> Do not remove barriers until the area is inspected by RCHSD Project Manager and others as determined during initial risk assessment. See Additional Requirements/Comments section on page 6. <input checked="" type="checkbox"/> Thoroughly cleaned by the Environmental Services Department. <input type="checkbox"/> Remove barrier materials carefully to minimize spreading of dirt and debris. Transport in tightly covered and sealed containers. <input checked="" type="checkbox"/> Vacuum work area with HEPA-filtered vacuums. <input type="checkbox"/> Wet mop area with disinfectant. <input type="checkbox"/> Remove isolation of HVAC system. <input type="checkbox"/> Registers are unobstructed and air flow is restored to original conditions or per design drawings. <input checked="" type="checkbox"/> Minimum of 2 room air changes at design conditions after final cleaning.		

Tuberculosis

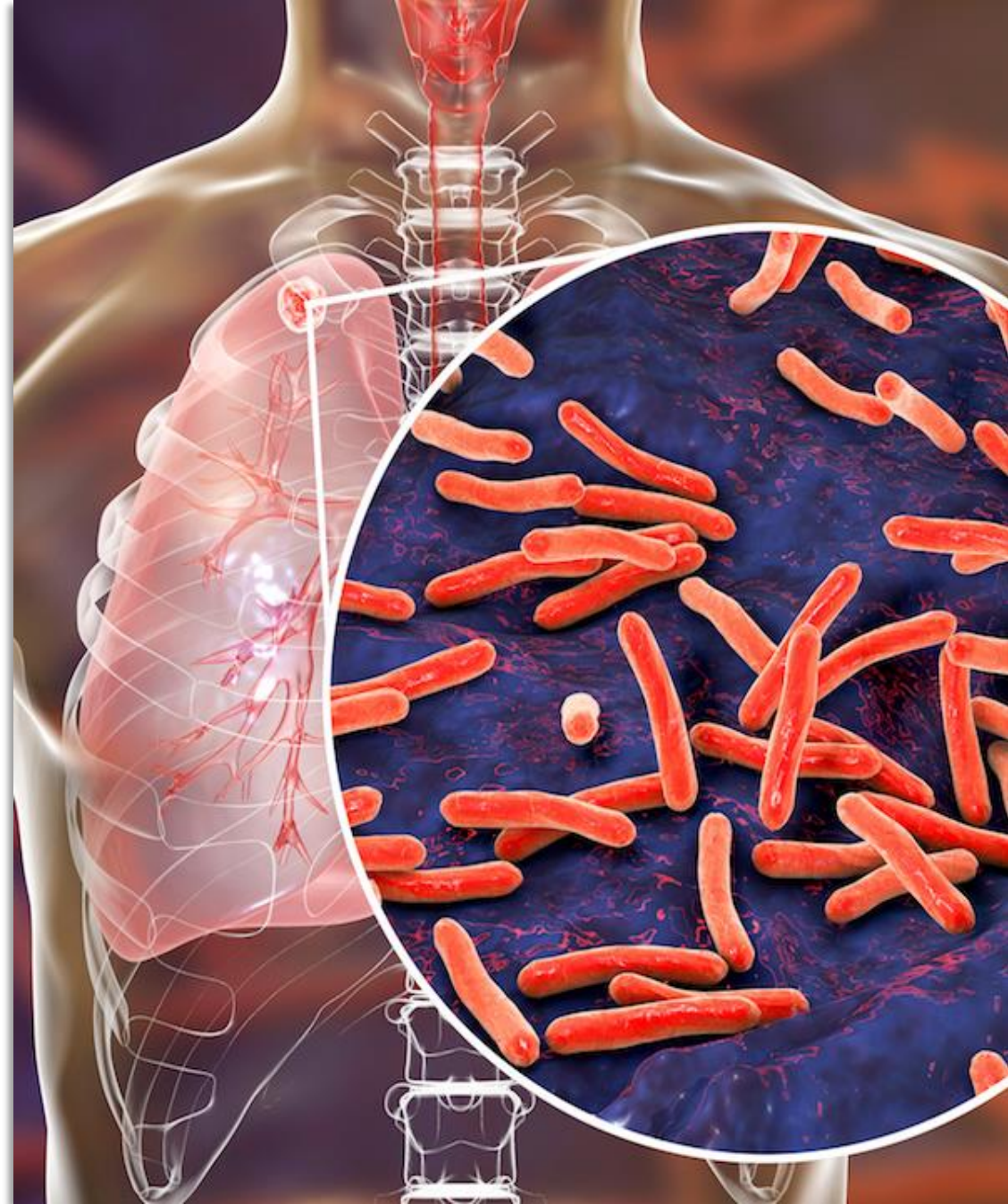
San Diego County reported 243 new cases of active TB in 2023 (current data as of 3/8/2024).

- Median age: 55
- Range: 1 to 91 yrs
- Highest rates: those aged 65 years and older (34% of all cases)

RCHSD reported 3 cases of active TB in 2024.

One Active TB Exposure Incident:

- 55 Staff exposed
- 0 Conversions to TB after exposure

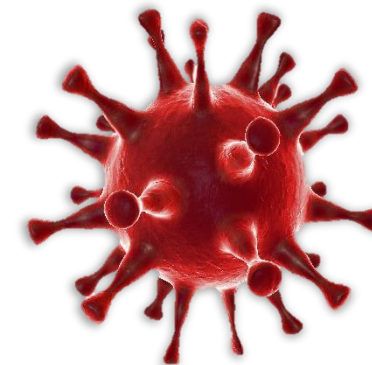


Communicable Disease Exposure Management

- All **employee** exposures are managed by Infection Control (IC) and Occupational Health (OHS)
 - Contact IC or OHS if an exposure occurs
 - IC will confirm the exposure and complete risk assessment
 - OHS will provide monitoring and follow-up
- For **patient** exposures, Infection Control will complete a risk assessment and provide recommendations to physicians for patient follow-up

Most exposures can be prevented by following Infection Control best practices including handwashing, proper use of PPE & isolation, and safe sharps handling!

Outbreaks



- Infection Control monitors for hospital-based and community outbreaks
- IC closely communicates with San Diego Public Health Department
- In the event of an outbreak, IC will:
 - Take measures to prevent transmission within our facility
 - Provide guidance to community physicians to prevent exposure in offices
 - Communicate with physicians and staff to be on alert and to report any suspected cases to Infection Control

Infection Control Resources

Visit the Infection Control SharePoint site:

<https://rchsdorg.sharepoint.com/> → Departments → Infection Control



*Thank you for
preventing the
spread of
infection!*

