

INFECTION PREVENTION IN HEALTH CARE PROVIDERS

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PRE-EXPOSURE

- Environment of Care
- Standard Precautions
 - Hand Hygiene
 - Use of PPE
 - Clean and Disinfect Equipment
- Infection Prevention
- Transmission-Based Precautions
 - Isolation Guidelines
- Employee Health
- Pre-Employment Screenings
 - Immunization Review



POST-EXPOSURE

- Environment of Care
- Notify Infection Prevention of Potential Breach in Isolation
- Infection Prevention
- Identify and Investigate Exposure
- Employee Health
- Post-Exposure Guidance

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WHEN WE SAY "EMPLOYEE":

- Employees
- Students
- Volunteers
- Independent / Private Practitioners
- Contracted Workers


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PROGRAM BASICS


 Pre-Employment Health Assessment in Relation to Work Environment

 Immunization Review

 Tuberculosis Screening

 Respirator Fit Testing

 Illness Return to Work

 Post- Exposure Protocols

 Continued Monitoring of Emerging Risks

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PRE-EMPLOYMENT HEALTH ASSESSMENT

- Health care providers are at risk for exposure to and acquisition of vaccine preventable diseases.
 - Infection Prevention:
 - Handwashing
 - Patient Isolation and PPE
 - Employee/Occupational Health:
 - Medical Review
 - Immunization Review



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MEDICAL REVIEW

- Bloodborne Pathogens
 - Reviewed by Risk Management Team for Employment Clearance
- Pregnant and Immunocompromised
 - Isolation Policies designed to isolate organism/patient – therefore, further restriction atypical

Agent	Special Precautions or Restrictions due to Pregnancy
Cytomegalovirus (CMV)	None; Use Standard precautions.
Hepatitis B	None; Use Standard precautions.
Hepatitis C	None; Use Standard precautions.
Herpes simplex	None; Use Standard precautions.
Human immunodeficiency virus	None; Use Standard precautions. Consider postexposure prophylaxis after high-risk needlestick exposure.
Influenza	None; Use Droplet precautions. Receive Vaccine (safe during pregnancy)
Measles	None; Use airborne precautions. Receive Vaccine**
Methicillin Resistant Staph aureus (MRSA)	None; Use contact precautions if infected.
Parvovirus B19	None; Use Droplet precautions.
Rubella	None; Use droplet precautions for acute infection; Contact precautions for Congenital Rubella. Receive vaccine**
Tuberculosis	None; Use airborne precautions.
Varicella-zoster	None; Use airborne and contact precautions. Receive Vaccine**, VZIG within 96 hours of exposure if susceptible.

** Live vaccines are given routinely before pregnancy

Reference: Guidelines for Infection Control in Health Care Personnel, 1998

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IMMUNIZATION REVIEW

- All medical facilities that provide direct patient care are encouraged to formulate and implement a comprehensive **Immunization Policy** for health care providers
 - Outlines Exposure Risk to Vaccine Preventable Diseases by job description.
 - Provides Immunization Recommendations based on Exposure Risk.



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IMMUNIZATION REVIEW (CONT.)

- All health care providers should be offered **Tdap** vaccine unless they have evidence of having received vaccination in adulthood and within past 10 years.
- All health care providers should be assessed for immunity to **Measles, Mumps, Rubella and Varicella**.
- All health care providers should be offered annual immunization with **Influenza** vaccine.
- All health care providers should be offered **COVID-19** vaccine (as indicated).
- Additional Recommendations:
 - Health care providers with potential for exposure to blood and body fluids should also be assessed for immunity to **Hepatitis B**.
 - **Polio, Meningococcal, Rabies, Anthrax, Typhoid, Hepatitis A, Smallpox, Mpox, COVID-19, Yellow Fever** vaccines should be considered for health care providers working in specific Lab, Research or Biocontainment settings or for health care providers intending to travel as part of their employment to specific areas based on exposure risk.

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IMMUNIZATION REVIEW (CONT.)

- **Immunization Policy** considerations:
 - Vaccine Accessibility
 - Where can health care providers receive vaccination?
 - Offer vaccination free-of-charge?
 - Required or Recommended?
 - Consequences of Refusal
 - Approach to Non-Responders and those unable to receive vaccination?

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IMMUNIZATION REVIEW (CONT.)

- Definition of Immunity for Health Care Providers
 - **Hepatitis B**
 - Documented proof of a positive Hepatitis B antibody titer post vaccination series (>10)
 - **Rubeola (Measles)**
 - Documentation of 2 MMR Vaccines received 28 days apart
 - Documentation of Reactive/Positive Rubeola titer at > 12 months of age
 - **Mumps**
 - Documentation of 2 MMR Vaccines received 28 days apart
 - Documentation of Reactive/Positive Mumps titer at > 12 months of age
 - **Rubella**
 - Documentation of 1 MMR Vaccine
 - Documentation of Reactive/Positive Rubella titer at >12 months of age
 - **Varicella**
 - Documentation of 2 Varicella vaccines received 28 days apart
 - Documentation of Reactive/Positive Varicella titer

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IMMUNIZATION REVIEW (CONT.)

- Definition of Immunity for Health Care Provider (Continued)
- **Influenza and COVID-19**
 - Vaccination recommended for all health care workers unless medical contraindicated (rare)
 - Benefits of Vaccination:
 - Prevents Severe Illness, Potential Hospitalization and Potential Death
 - Best Protection when up-to-date with recommended number of doses and boosters received (as eligible)

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TUBERCULOSIS SCREENING

- Screening and surveillance plan will depend on facility risk assessment
 - In regions with **Low TB Incidence Rate**, health care providers should undergo Initial TB Screening with Annual risk assessment and symptom evaluation.
 - Initial TB Screening:
 - For individuals without documented prior TB disease or Latent TB Infection (LTBI): Baseline TB testing with IGRA or TST should be performed.
 - IGRA vs. TST
 - CXR and Referral if positive
 - Annual Risk Assessment and Symptom Evaluation
 - In the absence of a known exposure or ongoing transmission, no routine serial TB testing at any interval after baseline is warranted.
 - Serial TB Testing may be considered for health care providers at increased risk for occupational exposure (ie. Pulmonologists, Respiratory Therapists, Emergency Medicine Personnel, Lab Personnel)



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RESPIRATOR FIT TESTING

- The Occupational Safety and Health Administration (OSHA) requires a medical evaluation and fit testing prior to use of any tight-fitting respirator including N95 Respirators
- Health care providers should wear respiratory protection in the following circumstances:
 - While in the room or in the presence of a patient with known or suspected airborne disease (ie. Tuberculosis, COVID-19, Disseminated Varicella)
 - While present during an aerosol-generating procedure for patient with known or suspected airborne disease
 - Endotracheal Intubation
 - Bronchoscopy
 - Sputum Induction
 - Chest Physical Therapy (CPT)
 - Administration of Aerosolized Drugs
 - Irrigation of Airborne Disease Related Abscess
 - Autopsy on Cadaver with Airborne Disease
- Powered Air-Purifying Respirators (PAPRs) are an alternative to N95 Respirators for Respiratory Protection against Airborne Disease



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ILLNESS RETURN TO WORK

- Return-to-Work following illness typically depends on:
 - Diagnosis
 - Symptoms
 - Treatment
 - Recovery



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ILLNESS RETURN TO WORK (CONT.)

- General Guidelines for **Respiratory Illness**
 - Fever free (<100 F) without the use of fever-reducing medications x 24 hours
 - Improvement of symptoms x 24 hours
 - Symptoms mild enough that they are confinable by wearing mask (for respiratory symptoms) and do not interfere with ability to perform one's job duties

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Illness	Work Restrictions	Duration
COVID 19	Exclude from work	Protocol managed by Employee Health.
Influenza	Exclude from work Upon return, exclude from working in departments with known "high-risk" patient contact* for a minimum of 7 days starting from day of symptom onset	Until the following criteria have been met (typically 3–5 days): <ul style="list-style-type: none"> • Fever free (<100 F) for 24 hours without the use of fever-reducing medication • Improvement of symptoms for 24 hours • Symptoms mild enough to be tolerable to work with, do not interfere with the ability to perform one's job duties, and confinable by donning an appropriate mask
RSV and Other Upper Respiratory Infections (RSV, Bronchitis, Common Cold, Rhinovirus, etc.)	Exclude from work	Until the following criteria have been met: <ul style="list-style-type: none"> • Fever free (<100 F) for 24 hours without the use of fever-reducing medication • Improvement of symptoms for 24 hours • Symptoms mild enough to be tolerable to work with, do not interfere with the ability to perform one's job duties, and confinable by donning an appropriate mask

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ILLNESS RETURN TO WORK (CONT.)

- General Guidelines for **Diarrheal Disease**
 - Fever free (<100 F) without the use of fever-reducing medications x 24 hours
 - Improvement of symptoms without the use of anti-diarrheal medications
 - Gastroenteritis: 24 hours
 - Norovirus: 48 hours
 - C-Diff: 72 hours
 - Symptoms mild enough do not interfere with ability to perform one's job duties

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Illness	Work Restrictions	Duration
Gastroenteritis	Exclude from work	Until the following criteria have been met: <ul style="list-style-type: none"> • Until symptoms (vomiting, diarrhea) have resolved without the use of anti-diarrheal medications for 24 hours • Fever free (<100 F) for 24 hours without the use of fever-reducing medication
Norovirus	Exclude from work	Until the following criteria have been met: <ul style="list-style-type: none"> • Until symptoms (vomiting, diarrhea) have resolved without the use of anti-diarrheal medications for 48 hours • Fever free (<100 F) for 24 hours without the use of fever-reducing medication
Clostridium difficile (C-diff)	Exclude from work	Until the following criteria have been met: <ul style="list-style-type: none"> • Until symptoms (vomiting, diarrhea) have resolved without the use of anti-diarrheal medications for 72 hours • Fever free (<100 F) for 24 hours without the use of fever-reducing medication

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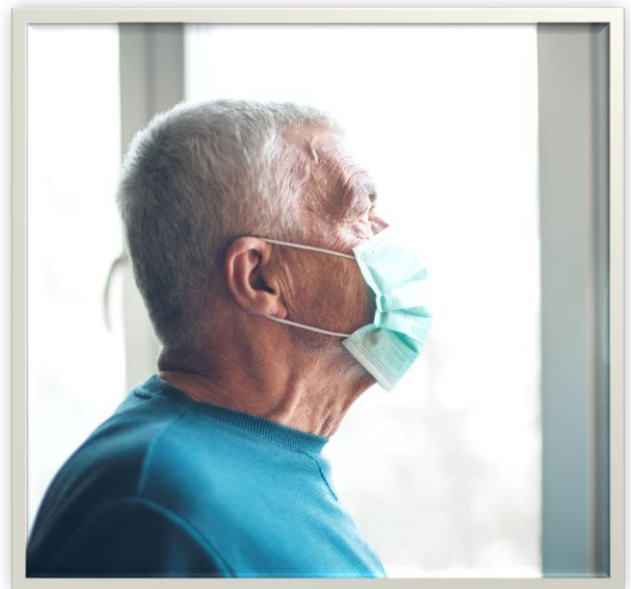
ILLNESS RETURN TO WORK (CONT.)

- Surveillance for Infection in Health Care Providers
 - Ongoing, closely coordinated with local Public Health Department
 - What's going around?
 - Seasonal
 - Investigation of Hospital-Acquired Infection
 - Risk to Colleagues?
 - Accidental Exposure to Communicable Disease

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POST- EXPOSURE PROTOCOLS

- **Communicable Disease Exposure**
 - Infection Prevention
 - Define Exposure
 - Type of Contact
 - Exposure Window
 - Employee/Occupational Health
 - Exposure Guidance to Those Identified as Being Exposed
 - Review Vaccination Status (As Applicable)
 - Work Restriction (Quarantine)
 - Prophylaxis
 - Symptom Monitoring or Surveillance Testing



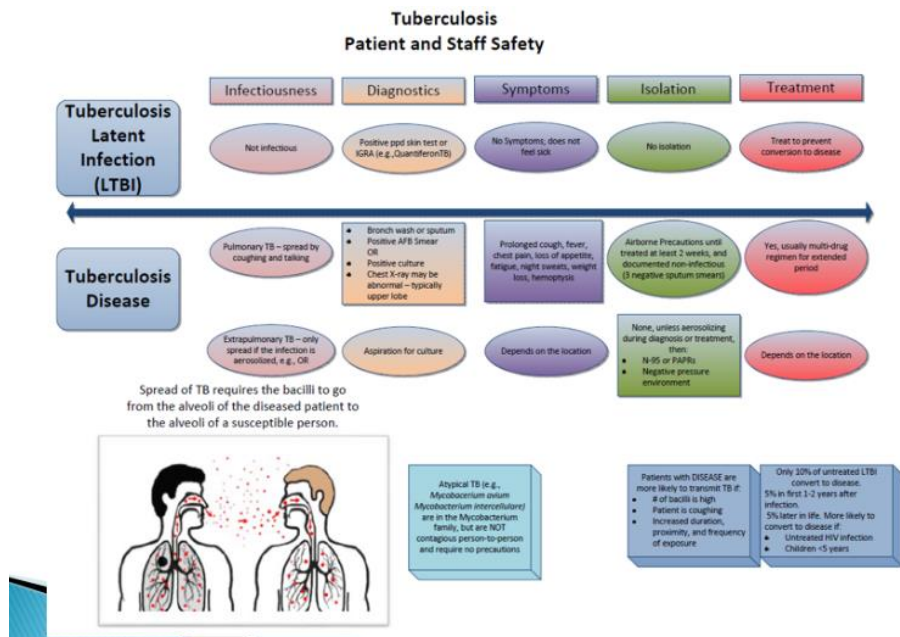
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POST- EXPOSURE PROTOCOLS (CONT.)

- **Communicable Disease Exposure Example: Tuberculosis**
 - Infection Prevention Determines Exposure Definition
 - Latent vs.Active TB
 - Type of Contact
 - Exposure Window
 - Employee Health Provides Post-Exposure Protocol
 - Complete Baseline Tuberculosis Screening (as soon as possible)
 - Complete Post-Exposure Tuberculosis Screening (8-10 Weeks Following Exposure)

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ACTIVE VS. LATENT TB



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POST- EXPOSURE PROTOCOLS (CONT.)

- **Bloodborne Pathogen Exposure (HIV, HBV, HCV)**
 - Infection Prevention & Employee Health have standing exposure definition
 - Employee Health Provides Post-Exposure Protocol
 - Depends on...
 - Pathogen Involved
 - Amount of Pathogen in the Patient's Blood
 - Immunity Status of Health Care Provider

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POST- EXPOSURE PROTOCOLS (CONT.)

- **Bloodborne Pathogen Exposure (HIV, HBV, HCV)**
 - What is the Risk?
 - HIV
 - The estimated risk of HIV infection from a sharps injury is about 0.3% (1 in 300)
 - The risk appears to be greater than 0.3% for exposure to HIV (+) patients involving:
 - Deep injury (as compared to mucocutaneous exposure)
 - Visible blood on the device involved
 - HBV
 - The chance of becoming infected with HBV from a sharps injury is estimated to be between 6 and 30%
 - HCV
 - The risk of infection after percutaneous exposure to HCV-infected blood is 1.8% (between 0.8 and 3%)

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POST- EXPOSURE PROTOCOLS (CONT.)

- **Bloodborne Pathogen Exposure (HIV, HBV, HCV)**
 - What should you do if you have a blood occupational exposure?
 - Perform First Aid
 - Wash the site of injury with soap and water
 - Flush nose/mouth with water
 - Irrigate eyes with clear water, saline or sterile irrigant
 - Report the incident in accordance with organizational protocol
 - Immediately seek medical evaluation from a qualified health care provider because, in some cases, postexposure treatment may be recommended and should be started as soon as possible

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POST- EXPOSURE PROTOCOLS (CONT.)

- **Bloodborne Pathogen Exposure (HIV, HBV, HCV)**
 - Health care professionals who evaluate the exposures of health care providers should be:
 - Selected before health care providers placed at risk for exposure
 - Educated in providing antiretroviral therapy

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POST- EXPOSURE PROTOCOLS (CONT.)

- **Bloodborne Pathogen Exposure (HIV, HBV, HCV)**
 - Baseline Testing of the Source and the Exposed Health Care Provider
 - If Testing Results Positive:
 - PEP
 - Surveillance Testing
 - Referral?

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CONTINUED MONITORING OF EMERGING RISKS

- Mpox
- Ebola
- Marburg
- Polio
- Pandemic Influenza
- Others?

Be able to speak to the difference and calm the fears.



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QUESTIONS?