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2023 ORH

Hospital Quality Workshop

May 15-17, 2023

Seaside Civic and Convention Center | Seaside, OR

Infection Prevention Staff at your Critical Access Hospital

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Objectives

- Infection prevention and control (IPC) programs
  - Brief history
  - Scope and essential responsibilities of the infection preventionist (IP)
- Standard and transmission-based precautions
- Oregon Health Authority (OHA)'s Healthcare-Associated Infections (HAI) Program
  - Then and now
  - Working with us

Photo by Marek on Pexels

Infection control programs: A brief history

- First began in 1950s
- Prevalence in hospitals increased in late 60s-70s due to American Hospital Association and The Joint Commission (TJC)
- Patient safety movement brought programs to other healthcare settings (long-term care, ambulatory surgery)
- The Centers for Medicaid and Medicare Services (CMS) mandates certain facility types to have IPC personnel, programs, and standards for reimbursements
  - The Code of Federal Regulations (CFR) states that critical access hospitals must active facility-wide IPC and antibiotic stewardship programs, and that an individual qualified through education, training, experience, or certification is the infection preventionist responsible for the infection prevention and control program

Image 12009 from CDC Image Library

Infection prevention program goals and components

- To cost-effectively:
  - Protect patients
  - Protect healthcare personnel (HCP), visitors, and others in healthcare environment

https://www.cdc.gov/infectioncontrol/projectfirstline/healthcare/recognize-risks.html

- Components
  - Infection prevention practices
  - Technical guidelines
  - Human resources (training, staffing, occupational health)
  - Surveillance of diseases and compliance with infection prevention practices
  - Microbiology laboratory support
  - Clean and safe environment
  - Program monitoring and evaluation
  - Links with public health and other services

The infection control committee and infection preventionist

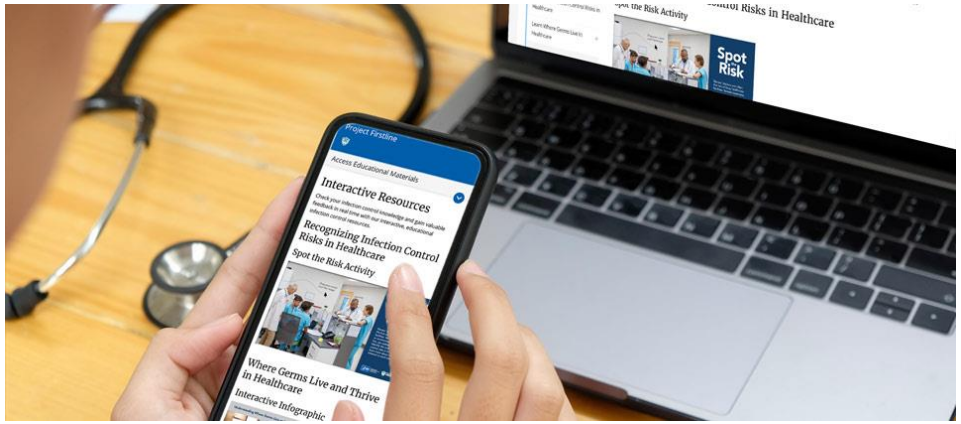
- IPC programs are multidisciplinary and involve a team
  - Develop policy and procedure, establish infrastructure, share data, train healthcare personnel, implement and evaluate new technologies, infection control practices, and control measures

- IPC committee may include
  - Clinical and administrative leadership and healthcare personnel
  - Maintenance, pharmacy, microbiology, construction/facilities, and environmental services personnel
  - Trained, often certified, infection preventionists

Patient and healthcare personnel education

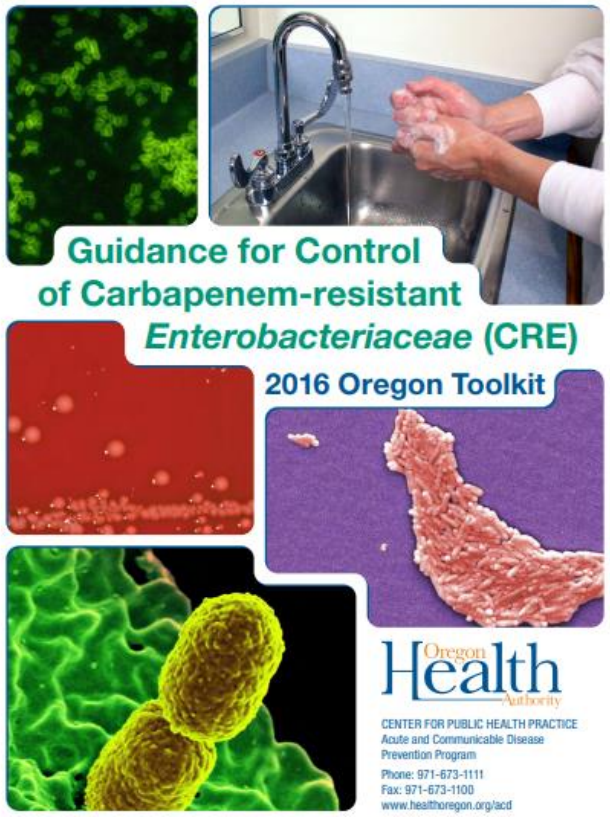
- Patients should be educated on the infection prevention practices their HCP should be following
- Patients with infections should receive specific education on their role in preventing transmission to others

- HCP should be educated about their role in and responsibility for infection prevention
  - Participatory, competency-based training
  - Observations and audits



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

Evidence-based policies and procedures



https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/DISEASESAZ/CRE1/cre_toolkit.pdf

- Evidence-based policies and procedures should cover hand hygiene, care of indwelling devices such as urinary catheters, sterilization and disinfection, and environmental cleaning
  - Checklists
  - Protocols
  - Care bundles
- Specific screening and isolation policies should be written for particular organisms including those that are resistant to antimicrobial drugs

Surveillance

- Systematic collection, analysis and interpretation of data
- Identify infections and areas for improvement
- Understand the epidemiology of disease in the facility: who is most impacted?
- Benchmark progress

https://www.cdc.gov/nhsn/pdfs/opc/nhsn-overview-508.pdf

Employee and occupational health

- Review and evaluate IPC elements of the Employee Health Program
- Implement and monitor HCP screening and immunization and TB programs
- Monitor HCP with significant infectious diseases and evaluate action taken to prevent transmission
- Monitor the incidence of HCP exposure to infectious diseases

https://www.cdc.gov/infectioncontrol/projectfirstline/images/C-Needle-Gif.gif

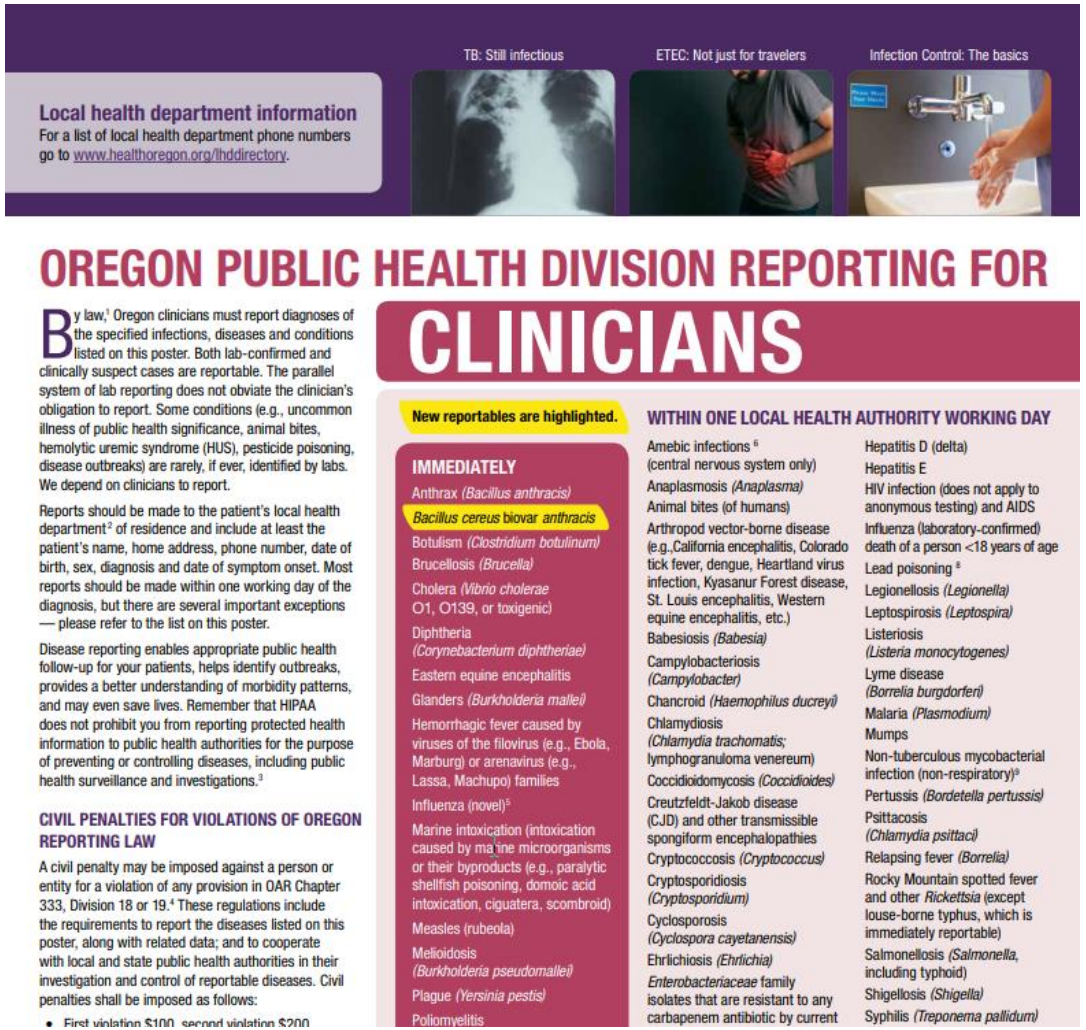
https://phil.cdc.gov/Details.aspx?pid=26183

Immunizations

- Primes immune system to fight pathogens
- Immunizations may provide long-lasting or lifelong immunity (e.g., measles) or for a short while (e.g., flu shot)
- Provided for patients as part of routine care
- Recommended for HCP as part of Employee Health
  - CDC: hepatitis B, influenza, MMR, varicella, Tdap, and meningococcal

Disease reporting

- Often it is the purview of the infection prevention program to comply with local, state, and federal public health reporting requirements
- Each state has its own reportable diseases
- Cases reported to local public health authorities (LPHAs) for investigation
  - By laboratory
  - By provider



Local health department information
For a list of local health department phone numbers go to www.healthoregon.org/lhddirectory.

TB: Still infectious

ETEC: Not just for travelers

Infection Control: The basics

OREGON PUBLIC HEALTH DIVISION REPORTING FOR CLINICIANS

By law,[1] Oregon clinicians must report diagnoses of the specified infections, diseases and conditions listed on this poster. Both lab-confirmed and clinically suspect cases are reportable. The parallel system of lab reporting does not obviate the clinician's obligation to report. Some conditions (e.g., uncommon illness of public health significance, animal bites, hemolytic uremic syndrome (HUS), pesticide poisoning, disease outbreaks) are rarely, if ever, identified by labs. We depend on clinicians to report.

Reports should be made to the patient's local health department[2] of residence and include at least the patient's name, home address, phone number, date of birth, sex, diagnosis and date of symptom onset. Most reports should be made within one working day of the diagnosis, but there are several important exceptions — please refer to the list on this poster.

Disease reporting enables appropriate public health follow-up for your patients, helps identify outbreaks, provides a better understanding of morbidity patterns, and may even save lives. Remember that HIPAA does not prohibit you from reporting protected health information to public health authorities for the purpose of preventing or controlling diseases, including public health surveillance and investigations.[3]

CIVIL PENALTIES FOR VIOLATIONS OF OREGON REPORTING LAW

A civil penalty may be imposed against a person or entity for a violation of any provision in OAR Chapter 333, Division 18 or 19.[4] These regulations include the requirements to report the diseases listed on this poster, along with related data; and to cooperate with local and state public health authorities in their investigation and control of reportable diseases. Civil penalties shall be imposed as follows:

- First violation $100, second violation $200

New reportables are highlighted.

IMMEDIATELY

Anthrax *(Bacillus anthracis)*
Bacillus cereus biovar *anthracis*
Botulism *(Clostridium botulinum)*
Brucellosis *(Brucella)*
Cholera *(Vibrio cholerae* O1, O139, or toxigenic)
Diphtheria *(Corynebacterium diphtheriae)*
Eastern equine encephalitis
Glanders *(Burkholderia mallei)*
Hemorrhagic fever caused by viruses of the filovirus (e.g., Ebola, Marburg) or arenavirus (e.g., Lassa, Machupo) families
Influenza (novel)[5]
Marine intoxication (intoxication caused by marine microorganisms or their byproducts (e.g., paralytic shellfish poisoning, domoic acid intoxication, ciguatera, scombroid)
Measles (rubeola)
Melioidosis *(Burkholderia pseudomallei)*
Plague *(Yersinia pestis)*
Poliomyelitis

WITHIN ONE LOCAL HEALTH AUTHORITY WORKING DAY

Amebic infections[6] (central nervous system only)
Anaplasmosis *(Anaplasma)*
Animal bites (of humans)
Arthropod vector-borne disease (e.g.,California encephalitis, Colorado tick fever, dengue, Heartland virus infection, Kyasanur Forest disease, St. Louis encephalitis, Western equine encephalitis, etc.)
Babesiosis *(Babesia)*
Campylobacteriosis *(Campylobacter)*
Chancroid *(Haemophilus ducreyi)*
Chlamydiosis *(Chlamydia trachomatis;* lymphogranuloma venereum)
Coccidioidomycosis *(Coccidioides)*
Creutzfeldt-Jakob disease (CJD) and other transmissible spongiform encephalopathies
Cryptococcosis *(Cryptococcus)*
Cryptosporidiosis *(Cryptosporidium)*
Cyclosporosis *(Cyclospora cayetanensis)*
Ehrlichiosis *(Ehrlichia)*
Enterobacteriaceae family isolates that are resistant to any carbapenem antibiotic by current
Hepatitis D (delta)
Hepatitis E
HIV infection (does not apply to anonymous testing) and AIDS
Influenza (laboratory-confirmed) death of a person <18 years of age
Lead poisoning[8]
Legionellosis *(Legionella)*
Leptospirosis *(Leptospira)*
Listeriosis *(Listeria monocytogenes)*
Lyme disease *(Borrelia burgdorferi)*
Malaria *(Plasmodium)*
Mumps
Non-tuberculous mycobacterial infection (non-respiratory)[9]
Pertussis *(Bordetella pertussis)*
Psittacosis *(Chlamydia psittaci)*
Relapsing fever *(Borrelia)*
Rocky Mountain spotted fever and other *Rickettsia* (except louse-borne typhus, which is immediately reportable)
Salmonellosis *(Salmonella,* including typhoid)
Shigellosis *(Shigella)*
Syphilis *(Treponema pallidum)*

http://www.oregon.gov/oha/ph/diseasesconditions/communicabledisease/reportingcommunicabledisease/pages/reportable.aspx

Partner with state and local agencies

- LPHAs conduct routine case investigation and contact investigations, and are the first point of contact for most outbreak investigations
- Acute and Communicable Disease Prevention (ACDP) manages state-level surveillance systems and conducts special surveillance projects, provides guidance and protocols for disease investigations, and provides technical assistance for complex or multi-jurisdictional outbreak investigations

Image by Fauxels at Pexels

Outbreak management

- Outbreaks
  - Use standard case definitions accounting for person, place, time
  - Lab testing (or symptom presence) typically confirms disease
  - Often defined as two or more cases of similar illness
  - One case of certain diseases is enough to prompt investigation and outbreak response (e.g., carbapenem-producing carbapenem-resistant Enterobacterales [CP-CRE], novel influenza)
- Outbreaks are required to be reported to LPHA as soon as possible
- Goals of investigation
  - Determine the cause of disease
  - Identify the source of infection
  - Determine the mode of transmission
  - Determine who is at risk
  - Control and prevention

Microbiology and laboratory services

- IPC committee participation
- Provides laboratory testing that supports
  - Surveillance
  - Outbreak management
  - Disease reporting

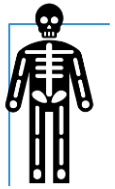
Image by Martin Lopez at Pexels

Antimicrobial stewardship

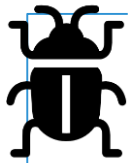
- Monitors antimicrobial agent selection across the institution to ensure the right bug/drug combo
- Tracks patterns of antimicrobial overuse, inappropriate use, and resistance
- Provides information on best practices for antimicrobial dosing and administration

https://www.cdc.gov/infectioncontrol/pdf/projectfirstline/Fight-AR-with-IC-508.pdf

What are standard precautions?



Used for all patient care



Protect healthcare providers from infection

Prevent the spread of infection from patient to patient

Use common sense practices and personal protective equipment

Image by Anna Shvets at Pexels

Practice requirements in Oregon

- OHA's OAR 333-019-0061
  - Effective 1/1/18
  - Requires all licensed healthcare providers to adhere to standard precautions defined in the CDC guideline
  - https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=239050

- CDC's Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007) – III.A.1.b, IV.H (1-8)
  - https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html

The chain of infection

- How does transmission (communicability) occur?

- Infectious agent
- Reservoir
- Portal of exit
- Mode of transmission
- Portal of entry
- Susceptible host

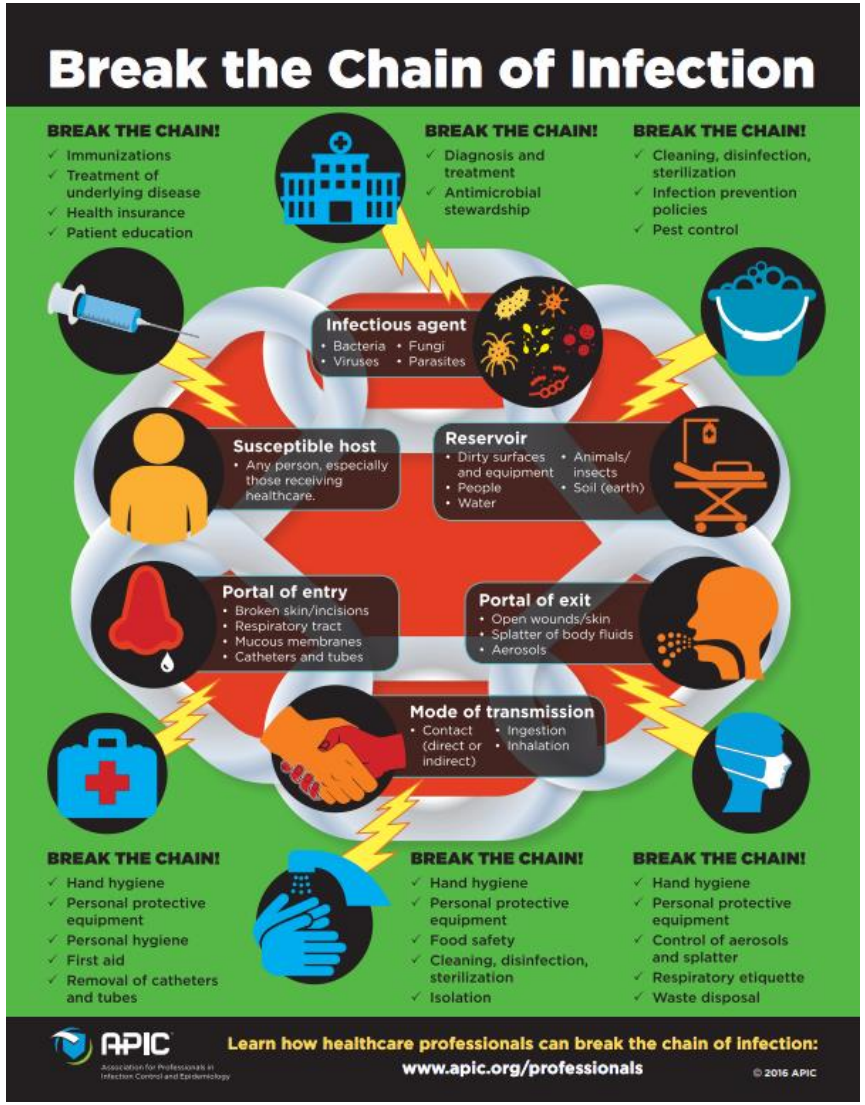


Image from Association for Professionals in Infection Control and Epidemiology (APIC)

Elements of standard precautions

- Hand hygiene
- Personal protective equipment (PPE)
- Respiratory etiquette
- Appropriate patient placement
- Handling and reprocessing of patient care equipment
- Environmental cleaning and disinfection
- Textile and laundry handling
- Safe injection practices
- Safe sharps handling

Hand hygiene

- Most important factor in preventing spread of pathogens and antibiotic resistance in healthcare settings
- Before:
  - Patient contact
  - Donning gloves
  - Inserting invasive devices
- After:
  - Contact with patient, body fluids, dressings
  - Doffing gloves
- Select soap-and-water when hands look or feel visibly dirty or when indicated by a particular pathogen
- Select alcohol-based hand rub (ABHR) for routine decontamination

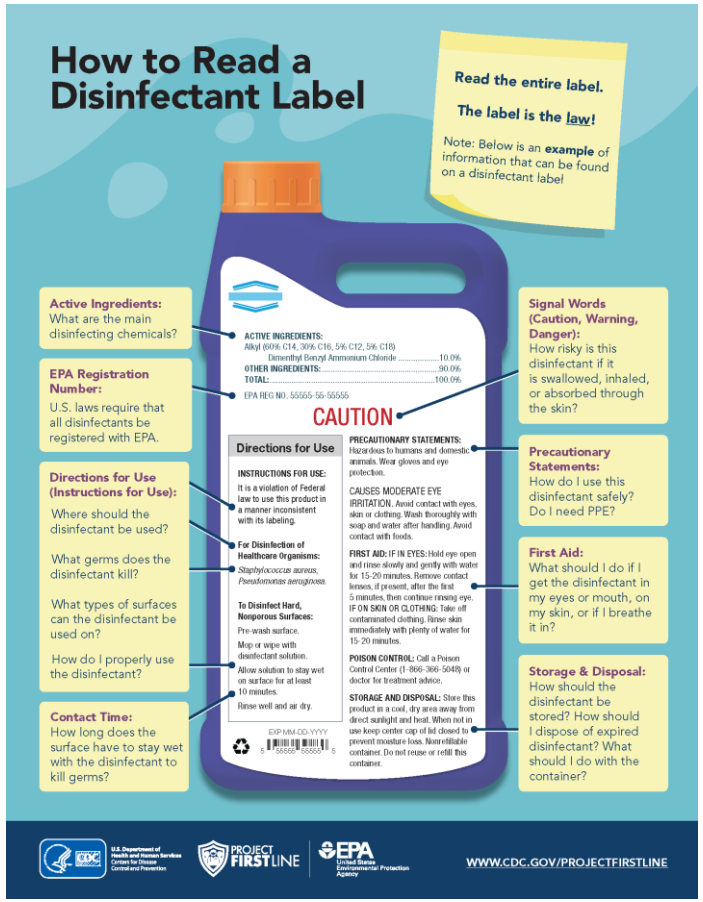
https://www.cdc.gov/infectioncontrol/pdf/projectfirstline/Healthcare-Germs-Body-Skin-508.pdf

Environmental cleaning and disinfection

- Pathogens can live on surfaces for a long time
  - *Clostridioides difficile:* Five months
  - *Escherichia coli*: Up to 16 months
- Surfaces that are commonly contaminated are called high-touch areas
  - Bed rails, door knobs, doors, call buttons, chairs
- Crucial to properly clean and disinfect
  - Clean: Physical removal of foreign material
  - Disinfection: Destroys most or all microorganisms
  - Sterilization: Destroys all forms of microbial life, including spores
- Select, prepare, and apply products correctly

https://www.cdc.gov/infectioncontrol/pdf/projectfirstline/Healthcare-Germs-Environment-DrySurfaces-508.pdf

Environmental cleaning and disinfection

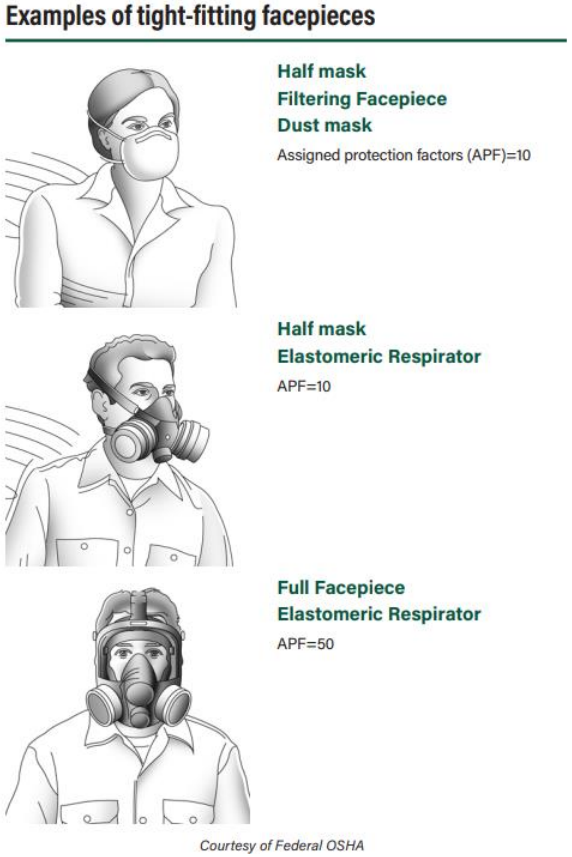


https://www.cdc.gov/hai/pdfs/HowToReadALabel-Infographic-508.pdf

- The Environmental Protection Agency (EPA) has lists of disinfectants registered against common pathogens
  - E.g., List D includes antimicrobial products effective against human HIV-1 virus and hepatitis B virus
  - List N includes disinfectants for use against SARS-CoV-2

Personal protective equipment (PPE)

- Specialized clothing or equipment worn for protection against potentially infectious materials
- Helps protect against contamination of skin, mucus membranes, clothes and hands from blood and other body fluids
- Choose amount and type of PPE for the situation
- PPE may include items such as:
  - Gloves
  - Gown
  - Mask
  - Face protection
  - Eye protection



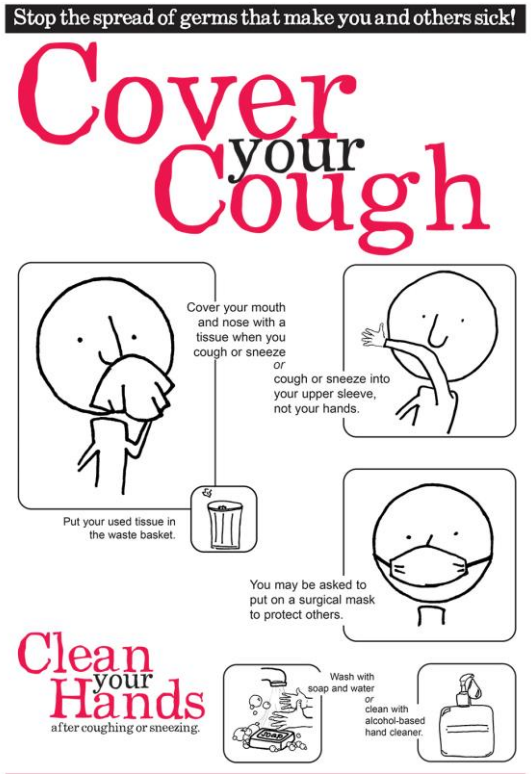
https://osha.oregon.gov/OSHAPubs/3330.pdf

Personal protective equipment

- Factors influencing PPE selection
  - Type of exposure expected (touch, splash, spray)
  - Category of precautions indicated
  - Durability and appropriateness for task
  - Fit
- Follow donning and doffing procedures
- Pair with appropriate hand hygiene
- Change often to prevent contamination

Image 23209 from CDC Image Library

Respiratory hygiene/cough etiquette



https://www.oregon.gov/oha/ph/PreventionWellness/FluPrevention/Documents/cough-poster-sm.pdf

- Applies to both HCP and patients
- Cough into your elbow
- Wash your hands after coughing or sneezing
- Throw away dirty tissues
- Wear mask if providing care to patients or if you are a patient with a cough

Patient placement

- Consider the potential for transmission of infectious agents in patient-placement decisions
- Place patients who pose a risk for transmission to others (e.g., uncontained secretions, excretions or wound drainage) in a single-patient room with single bathroom when available
- Determine patient placement based on the following principles:
  - Route(s) of transmission of the known or suspected infectious agent
  - Risk factors for transmission in the infected patient
  - Risk factors for adverse outcomes resulting from an HAI in other patients in the area or room being considered for patient-placement
  - Availability of single-patient rooms
  - Patient options for room-sharing (e.g., cohorting patients with the same infection)
- Patients infected with multi-drug resistant organisms (MDROs) should not be placed in shared rooms

Patient care equipment

- Containing, transporting, and handling patient-care equipment and instruments/devices that may be contaminated with blood or body fluids
- Cleaning (removing organic material) prior to disinfection and sterilization to ensure that these processes are effective
  - Spaulding Criteria classifies instruments according to how invasively they are used (critical, semi-critical, non-critical)
  - Each classification corresponds to how thoroughly the item must be cleaned/disinfected/sterilized
- Wear PPE (e.g., gloves, gown), according to the level of anticipated contamination, when handling patient-care equipment and instruments/devices that is visibly soiled or may have been in contact with blood or body fluids

Textile and laundry

Image by Adrienne Andersen at Pexels

- Handle used textiles and fabrics with minimum agitation to avoid contamination of air, surfaces and persons
- If laundry chutes are used, ensure that they are properly designed, maintained, and used in a manner to minimize dispersion of aerosols from contaminated laundry
- Ensure that soiled linens are contained and that clean linens are stored in a way that prevent them from becoming contaminated
- HCP handling soiled linens should wear appropriate PPE

Injection Safety Guidelines From CDC

- Follow proper infection control practices and maintain aseptic technique during the preparation and administration of injected medications (e.g., perform hand hygiene).
- Never administer medications from the same syringe to more than one patient, even if the needle is changed.
- Never enter a vial with a used syringe or needle.
- Do not use medications packaged as single-dose or single-use for more than one patient.
- Do not use bags of intravenous solution as a common source of supply for more than one patient.
- Limit the use of multi-dose vials and dedicate them to a single patient whenever possible.
- Always use facemasks when injecting material or inserting a catheter into the epidural or subdural space.

https://www.cdc.gov/injectionsafety/index.html

Transmission-based precautions aka isolation precautions

- "Second tier" of basic infection control practice
- Used in addition to standard precautions for patients requiring more stringent measures

- Types of transmission-based precautions defined by the mode of transmission
  - Contact precautions (e.g., scabies, *Clostridioides difficile*)
  - Droplet precautions (e.g., pertussis, influenza)
  - Airborne precautions (e.g., tuberculosis, measles)

Image 11161 from CDC Image Library

Contact precautions

- For pathogens spread by touching patient or items (examples: MRSA, diarrheal illnesses, RSV)
- Wear a gown and gloves while in the patient's room and remove the gown and gloves before leaving the room
- Clean hands when entering and leaving the room
- Limit nonessential items entering/exiting the room
- Immediate placement in single-patient space/room
- Limit transport and movement of patients outside of the room unless necessary. Cover or contain the infected/colonized areas of the patient's body
- Use disposable or dedicated patient-care items if possible
- Ensure environment is cleaned and disinfected regularly, focusing on frequently-touched or used surfaces or items near the patient

https://www.cdc.gov/infectioncontrol/pdf/contact-precautions-sign-P.pdf

Droplet precautions

- Used for pathogens that are spread in tiny droplets caused by coughing and sneezing (examples: influenza, whooping cough)
- Ensure the patient wears a mask for source control
- Wear a surgical mask while in the room.
- Clean hands (hand washing or use hand sanitizer) when entering and leaving the room
- Place patient in a single-patient space or room as soon as possible
- Limit transport and movement of patients outside of the room unless necessary. When outside of the room, instruct the patient to wear a mask and follow respiratory hygiene/couth etiquette

https://www.cdc.gov/infectioncontrol/pdf/droplet-precautions-sign-P.pdf

Airborne precautions

- Apply to patients known or suspected of being infected with pathogens transmitted by:
  - Airborne droplet nuclei
  - Dust particles containing an infectious agent
- PPE
  - Fit-tested N95 respirator or powered air-purifying respirator (PAPR)
- Airborne infection isolation room (AIIR)
  - Negative pressure, 6-12+ air exchanges per hour
  - Exhaust directly to outside or through HEPA filter
  - PPE and transfer of patient if no AIIR is available
- Patient
  - Use separate entrance
  - Respiratory hygiene and cough etiquette
  - Leave room vacant for at least one hour after exam

https://www.cdc.gov/infectioncontrol/pdf/airborne-precautions-sign-P.pdf

History of OHA's HAI Program

Image by Avery Nielsen-Webb at Pexels

- June 2007: OR Legislature passes House Bill 2524 creating a mandatory HAI Reporting Program housed under the Oregon Office for Health Policy and Research (OHPR)
  - Used funding provided by the U.S. Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC), American Recovery and Reinvestment Act, Epidemiology and Laboratory Capacity for Infectious Diseases (ELC)
- September 2009: Program activities commence

History of OHA's HAI Program

- Legislatively-mandated activities included
  - Implement an HAI surveillance and prevention program;
  - Maintain a multi-disciplinary HAI Advisory Committee (HAIAC) to advise the OHPR regarding the HAI Reporting Program;
  - Require healthcare facilities to report on the following, but not limited to, list of measurements:
    - Surgical site infections,
    - Central line related bloodstream infections,
    - Urinary tract infections, and
    - Healthcare facility process measures designed to ensure quality and to reduce health care acquired infections;
  - Regularly evaluate the quality and accuracy of the data collected for the HAI Reporting Program

OHA's HAI Program today

Identification and response to HAI/AR	Preventative and responsive IPC work	NHSN and state reportable disease surveillance	Antimicrobial stewardship
• Outbreak, cluster, and infection control breach investigation • Data-driven targeting of priority facilities and organisms for intervention • EIP*: population-based surveillance projects, other HAI special studies	• Project Firstline • Develop and update IPC guidance and resources • IPC consultation, both proactively and responsively • HAIAC	• Expansion of surveillance measures • Improved data monitoring • Internal/external validation • Data systems development	• Provider education • Prescribing monitoring • Core element tracking

EIP: Emerging Infections Program

Get involved with the HAI Program

- Attend or join our HAI Advisory Committee (HAIAC)
- Drug-Resistant Organism Prevention and Coordinated Regional Epidemiology (DROP-CRE)
- Participate in our Certification in Infection Control (CIC®) preparation class (ACE Program)
- Oregon Antibiotic Stewardship Network (ORASN) collaborative (mcgregoj@ohsu.edu)
- Check out our data, including:
  - OHA COVID-19 data dashboards
  - Flu Bites
- Reach out to us!
  - Ask infection prevention and control questions
  - Engage our infection prevention team to assess your facility's practices
- Don't forget…
  - All known and suspect outbreaks and clusters of communicable disease are reportable to your local public health authority!

What is Project Firstline?

- Centers for Disease Control and Prevention's (CDC) nationwide educational program to provide effective infection control training for HCP in all settings
- Key features of Project Firstline:
  - Addresses long-standing gaps in IPC knowledge and practice in healthcare settings nationwide
  - Targeted training materials and educational activities help to build HCP foundational knowledge of IPC
- www.cdc.gov/infectioncontrol/projectfirstline

Image from CDC Project Firstline

What is Oregon Project Firstline?

- What do we offer?
  - Recorded lectures covering a wide range of IPC topics
  - Interactive resources to test your knowledge
  - Printable materials including posters, fact sheets, and infographics
  - Videos and social media graphics
- Infection Prevention and Control (IPC) Training Request Portal
  - Request training from an expert tailored to your group's size, knowledge level, and needs
- Oregon Project Firstline text campaign
  - Text "JoinORIPC" to 59309
- tinyurl.com/oregonprojectfirstline

Other IPC resources

- Association for Professionals in Infection Control and Epidemiology (APIC)
- Society for Healthcare Epidemiology of America (SHEA)
- CDC's Infection Control website

- Your local public health authority (county health department)

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Thank you!

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OHSU