TRANSMISSION-BASED PRECAUTIONS
PRECAUTIONS

- Standard Precautions – infection prevention practices used with all patients regardless of suspected or confirmed diagnosis. Based on the principle that all blood, body fluids, nonintact skin and mucous membranes contain transmissible infectious agents.

- Transmission Based Precautions (TBP) - implemented when the route of transmission is not completely interrupted using Standard Precautions alone
  - Personal protective equipment (PPE)
  - Patient placement (cohorting patients, perhaps staff)
  - Limiting patient movement
  - Engineering controls
CHAIN OF INFECTION

PPE for the patient during transport/waiting
THREE CATEGORIES OF TBP

- Contact Precautions
  - Direct contact transmission: physical contact between an infected/colonized person and a susceptible person
  - Indirect contact transmission: contact from a reservoir, contaminated object/equipment
    - Multi-Drug Resistant Organisms
    - Clostridium difficile / GI illness
- PPE
  - Donn gown and gloves upon room entry
  - Doff prior to exiting patient room
THREE CATEGORIES OF TBP

- Droplet Precautions
  - Large-particle respiratory droplets from a source patient who is coughing, sneezing, and during certain procedures (suctioning)
    - Respiratory viruses
    - Pertussis
    - Meningitis

- PPE
  - Facemask, procedure/surgical mask
  - Donn upon room entry, doff prior to exiting
THREE CATEGORIES OF TB

- **Airborne**
  - Small-particle residue (less than or equal to 5 μm) that remain suspended in the air for long periods of time
    - Varicella, TB, measles

- **PPE**
  - Negative pressure isolation room
  - N-95 (fit tested) or higher respirator
  - PAPR
  - Glove and gown if spraying is likely
    - Or if in combination with Contact Precautions
      - Chicken pox – until lesions are dry/crusted

- **Airborne infection isolation room (AIIR)**
  - Acute care and long-term care settings
**Patient Placement**

- Priority to place patients with known or suspected MDRO colonization or infection in single-patient rooms
  - Give highest priority to patients with conditions that have increased risk of transmission (uncontained secretions)
- Cohort patients with the same MDRO (or same respiratory disease) in the same room or patient care area
  - Spatial separation of at least 3 feet, draw privacy curtain
- If that is not possible, place MDRO patients in rooms with patients who are at low risk for acquisition and adverse outcomes, and a short length of stay
### Why all the Different Practices?

<table>
<thead>
<tr>
<th>So many settings</th>
<th>So much to consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Care Settings</td>
<td>• Preventing Infections in Non-Hospital Settings: Long Term Care</td>
</tr>
<tr>
<td>LTCFs</td>
<td>• Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care</td>
</tr>
<tr>
<td>Ambulatory</td>
<td>• Basic Infection Control and Prevention Plan for Outpatient Oncology Settings</td>
</tr>
<tr>
<td>Home Care</td>
<td>• Infection Control in Home Care</td>
</tr>
<tr>
<td>Day Care (Adult/child)</td>
<td>• Healthcare Infection Control Practices Advisory Committee (HICPAC)</td>
</tr>
<tr>
<td>Inpatient BHS</td>
<td>• APIC Implementation Guides</td>
</tr>
<tr>
<td>Hospice</td>
<td>• APIC Text</td>
</tr>
<tr>
<td>Dialysis</td>
<td>• APIC Infection Preventionist’s Guide to Long-Term Care</td>
</tr>
</tbody>
</table>
WHAT TO DO ABOUT COLONIZATION?
LONG-TERM CARE FACILITIES

- The facility is, most likely, their home
- CRMC’s TCU unit is NOT a permanent placement
  - High number of post-op patients, patients with incisions
  - We continue TBP on colonized and infected patients
- In most SNFs TBPs based on signs and symptoms of infection
  - Is the patient a source of transmission to other patients?
    - Skin lesions that cannot be covered – MDROs, Shingles
    - VRE with diarrhea or incontinence
- APIC Text says – make decisions on the basis of risks to other patients in the facility
- When is it reasonable to limit movement and interaction?
  - Foodborne (fecal-oral transmission) illness and a shared dining space
LONG-TERM CARE FACILITIES

APIC Implementation Guide


Components of precautions for MRSA-positive residents

- Participation in resident activities
- Room considerations
- Use of PPE
- Visitors
AMBULATORY/OUTPATIENT SETTINGS

- The majority of ambulatory care settings are not designed to accommodate all TBP
  - Airborne precautions (AIIR) for chicken pox, measles?
- Prompt triage based on symptoms
- Educate staff to identify an active infection
  - Stool incontinence
  - Draining wounds
  - Febrile rash
- If the patient calls ahead
  - Accommodate an appointment when the clinic is less crowded
  - Don’t schedule them with your pregnant Provider
- Prioritize placement into a private treatment room ASAP
HOME CARE

- Wear PPE to protect yourself
- Patients known to have an MDRO should be cared for with appropriate barrier precautions
  - Transmission to other home-care patients through equipment or hands
  - Dedicated equipment if possible
    - BBP, stethoscopes
- If possible risk adjust your treatment schedule
  - Last appointment of the day
  - Avoid seeing a patient requiring wound care after seeing a patient with an MDRO
Guideline says: “The use of gowns, gloves, or masks by visitors in healthcare settings has not been addressed specifically in the scientific literature. Family members or visitors who are providing care or having very close patient contact may have contact with other patients and could contribute to transmission if barrier precautions are not used correctly. Specific recommendations may vary by facility or by unit and should be determined by the level of interaction”.

2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings
FAMILY AND VISITORS

- Depends on your healthcare setting
  - Pediatrics
    - Make family members understand the risks and prevention strategies they can still participate in

- Why would we want them to follow TBP?
  - 1. Transmission risk to others within the facility?
    - Involved in physically caring for the patient/loved one
  - 2. Incubating/ill with the same thing?
  - 3. At risk for acquiring the illness?

- Educate patient, family and visitors
Scripting for staff discussion with visitors

Include your requirements in a department or facility policy

Consider a brochure or handout

DISCONTINUING TBP

- For most conditions determined by symptoms and treatment
- Influenza – 7 days after illness onset or until 24 hours after the resolution of fever and respiratory symptoms, whichever is longer
  - [http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm)
- Norovirus – minimum of 48 hours after the resolution of symptoms
  - [http://www.cdc.gov/hicpac/norovirus/005_norovirus-summaryOrecs.html](http://www.cdc.gov/hicpac/norovirus/005_norovirus-summaryOrecs.html)
**DISCONTINUING TBP**

For MDROs, Guidelines says: “It may be prudent to assume that MDRO carriers are colonized permanently and manage them accordingly. Alternatively, an interval free of hospitalizations, antimicrobial therapy, and invasive devices (e.g. 6 or 12 months) before reculturing patients to document clearance of carriage may be used.”

2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

“The necessary duration of Contact Precautions for patients treated for infection with an MDRO, but who may continue to be colonized with the organism at one or more body sites, remains an unresolved issue”

Management of Multidrug-Resistant Organisms In Healthcare Settings, 2006
Discontinuing TBP

- 2009 CRE Guideline: “All acute care facilities should implement contact precautions for patients colonized or infected with carbapenem-resistant *Enterobacteriaceae* (CRE) or carbapenemase-producing *Enterobacteriaceae*. No recommendation can be made regarding when to discontinue contact precautions.”

Guidance for Control of Infections with Carbapenem-Resistant or Carbapenemase-Producing Enterobacteriaceae in Acute Care Facilities

- TBP remain in effect while there is a risk for transmission
- Consider applying TBP for longer periods based on clinical judgment
  - Immunocompromised
  - Infants or very young
ROOM TURNOVER

- Terminal Clean?
- Privacy curtains
  - Launder on a routine basis, when visibly soiled and after an isolation patient
- Clean patient care supplies in the room
  - Cleanliness of supplies should be maintained, for all patients, regardless of infection
  - Should be accessed with clean hands
    - Glove removal and hand hygiene performed
- Anyone using UV Disinfection?
  - Room must be physically cleaned first
Regulated Waste: liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

Other Potentially Infectious Materials: (1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV- or HBV-containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

**Waste Management**

- ‘Selected’ Isolation Wastes: discarded materials from patients with highly communicable diseases (category A, i.e. Ebola) should be classified as infectious waste

- In general we have a habit of over-characterizing waste as “Red Bag” in healthcare
  - PPE from a TBP room
**Balance**

- Increased transmission
- Movement Restriction
- Risk to others

---

- Patient can comply with hygiene
- Psychosocial needs
- Emotional Needs
- Therapy Needs
BALANCE

- TBP vs. movement restriction vs. therapy needs/requirements vs. psychosocial needs
- May need different policies/practices for different populations or locations
  - Pediatrics
- Make algorithms or flow-sheets for unique locations
  - Staff can refer to, to help them manage and reduce risk
  - Staff is comfortable to call you and look at their patient to determine an individualized plan
REFERENCES AND RESOURCES

Healthcare Infection Control Practices Advisory Committee (HICPAC)
2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

Guideline for the Prevention and Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings, 2011

Management of Multidrug-Resistant Organisms In Healthcare Settings, 2006

 Guidance for Control of Infections with Carbapenem-Resistant or Carbapenemase-Producing Enterobacteriaceae in Acute Care Facilities
http://www.cdc.gov/mmwr/PDF/wk/mm5810.pdf

Emerging Infectious Diseases Preventing Infections in Non-Hospital Settings: Long Term Care

Infection Control in Home Care

Basic Infection Control and Prevention Plan for Outpatient Oncology Settings

Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care
### Healthcare Infection Control Practices Advisory Committee (HICPAC)

#### 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

## Appendix A:

Preamble: The mode(s) and risk of transmission for each specific disease agent included in Appendix A were reviewed. Principle sources consulted for the development of disease-specific recommendations for Appendix A included infectious disease manuals and textbooks 633, 1043, 1044. The published literature was searched for evidence of person-to-person transmission in healthcare and non-healthcare settings with a focus on reported outbreaks that would assist in developing recommendations for all settings where healthcare is delivered. Criteria used to assign Transmission-Based Precautions categories follow:

- **Transmission-Based Precautions** category was assigned if there was strong evidence for person-to-person transmission via droplet, contact, or airborne routes in healthcare or non-healthcare settings and/or if patient factors (e.g., diapered infants, diarrhea, draining wounds) increased the risk of transmission.

Transmission-Based Precautions category assignments reflect the predominant mode(s) of transmission.

If there was no evidence for person-to-person transmission by droplet, contact, or airborne routes, Standard Precautions were assigned.

If there was a low risk for person-to-person transmission and no evidence of healthcare-associated transmission, Standard Precautions were assigned.

Standard Precautions were assigned for bloodborne pathogens (e.g., hepatitis B and C viruses, human immunodeficiency virus) as per CDC recommendations for Universal Precautions issued in 1988 780. Subsequent experience has confirmed the efficacy of Standard Precautions to prevent exposure to infected blood and body fluid 778, 779, 866.

Additional information relevant to use of precautions was added in the comments column to assist the caregiver in decision-making. Citations were added as needed to support a change in or provide additional evidence for recommendations for a specific disease and for new infectious agents (e.g., SARS-CoV, avian influenza) that have been added to Appendix A. The reader may refer to more detailed discussion concerning modes of transmission and emerging pathogens in the background text and for MDRO control in Appendix B.

### Type and Duration of Precautions Recommended for Selected Infections and Conditions

<table>
<thead>
<tr>
<th>Infection/Condition</th>
<th>Type</th>
<th>Duration</th>
<th>Precautions/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abscess</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Draining, major</td>
<td>C</td>
<td>DI</td>
<td>No dressing or containment of drainage; until drainage stops or can be contained by dressing</td>
</tr>
<tr>
<td>Draining, minor or limited</td>
<td>S</td>
<td></td>
<td>Dressing covers and contains drainage</td>
</tr>
<tr>
<td>Acquired human immunodeficiency syndrome (HIV)</td>
<td>S</td>
<td></td>
<td>Post-exposure chemoprophylaxis for some blood exposures 866.</td>
</tr>
<tr>
<td>Actinomycosis</td>
<td>S</td>
<td></td>
<td>Not transmitted from person to person</td>
</tr>
<tr>
<td>Adenovirus infection (see agent-specific guidance under gastroenteritis, conjunctivitis, pneumonia)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amebiasis</td>
<td>S</td>
<td></td>
<td>Person to person transmission is rare. Transmission in settings for the mentally challenged and in a family group has been reported 1045. Use care when handling diapered infants and mentally challenged persons 1046.</td>
</tr>
<tr>
<td>Anthrax</td>
<td>S</td>
<td></td>
<td>Infected patients do not generally pose a transmission risk.</td>
</tr>
<tr>
<td>Cutaneous</td>
<td>S</td>
<td></td>
<td>Transmission through non-intact skin contact with draining lesions possible; therefore use Contact Precautions if large amount of uncontaminated drainage. Handwashing with soap and water preferable to use of waterless alcohol based antiseptics since alcohol does not have sporidical activity 983.</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>S</td>
<td></td>
<td>Not transmitted from person to person</td>
</tr>
<tr>
<td><strong>Environmental; aerosolizable spore-containing powder or other substance</strong></td>
<td></td>
<td>DE</td>
<td>Until decontamination of environment complete [203]. Wear respirator (N95 mask or PAPR), protective clothing; decontaminate persons with powder on them (Notice to Readers: Occupational Health Guidelines for Remediation Workers at Bacillus anthracis-Contaminated Sites — United States, 2001-2002.) <strong>Hand hygiene:</strong> Handwashing for 30-60 seconds with soap and water or 2% chlorhexidine gluconate after spore contact (alcohol handrubs inactive against spores [983]. <strong>Post-exposure prophylaxis following environmental exposure:</strong> 60 days of antimicrobials (either doxycycline, ciprofloxacin, or levofloxacin) and post-exposure vaccine under IND</td>
</tr>
<tr>
<td>Antibiotic-associated colitis (see Clostridium difficile)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Thank you