Purdue University
Department of Speech, Language, and Hearing Sciences

2014 – 2015
SLHS 54900 and 57900
Mandatory In-service Manual

Code of Ethics
HIPAA
Risk Management
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54900-1 and 57900-I Mandatory In-services Checklist:
Risk Management, HIPAA,
Code of Ethics, CPR
Fall 2014

**During Orientation on August 22**

___ Sign attendance sheet.
___ Complete and turn in Risk Management Post-Test.
___ Sign and turn in **two copies** of the Risk Management Appendix A & D Forms.
___ Sign and turn in Photo Release Form.

**By August 29**

___ Fill out TB and HBV forms and put in Vicki Parker-Black’s box. If you currently do not have either one but are planning on getting the vaccine(s)/test(s) later, please check the “decline” option and sign.

___ Order your criminal background check at [www.CertifiedBackground.com](http://www.CertifiedBackground.com) ($33). When you receive the background check, print, make a copy and put it in Vicki Parker-Black’s box. It is due no later than **Sept. 26**.

___ Take HIPAA certification test online at [https://www2.itap.purdue.edu/SSTA/certifications/review.cfm?groupid=1&sectionid=3](https://www2.itap.purdue.edu/SSTA/certifications/review.cfm?groupid=1&sectionid=3) Print 2 copies of the certification. Put one copy in Vicki Parker-Black’s box and keep the other copy for your personal file.

**By September 26**

___ Must have submitted copy of background check to Vicki Parker-Black (preferable that you turn in immediately upon receipt).

**By November 21**

___ Must have turned in copy of CPR certification card (front and back) to Vicki Parker-Black (preferable that you turn in immediately upon receipt). November 2014 CPR training dates will be provided during 54900/57900.
54900-4 and 57900-II and III Mandatory In-services Checklist: Risk Management, HIPAA, Code of Ethics, CPR Fall 2014

Immediately:
   ____ Fill out and send Request for Limited Criminal History with your money order for $7.00 to the Indiana State Police. When you receive the background check, put a copy in Vicki Parker-Black’s box. Keep the original for your personal records. It is due no later than Sept. 26.
   ____ Read the new HIPAA training materials and take the HIPAA certification test online at https://www2.itap.purdue.edu/SSTA/certifications/review.cfm?groupid=1&sectionid=3 Print 2 copies of the certification. Put one copy in Vicki Parker-Black’s mailbox and keep the other copy for your personal records.

By August 29: Complete, sign and give all of the following forms to Vicki Parker-Black
   ____ HIPAA certification form
   ____ Risk Management Post-Test
   ____ Two copies of the Risk Management Appendix A & D Forms
   ____ TB and HBV forms. If you currently do not have either one but are planning on getting the vaccine(s)/test(s) later, please check the “decline” option and sign.

By September 26
   ____ Must have submitted copy of Limited Criminal History to Vicki Parker-Black (preferable that you turn in immediately upon receipt).

By November 21
   ____ Must have turned in copy of CPR certification card (front and back) to Vicki Parker-Black (preferable that you turn in immediately upon receipt). November 2014 CPR training dates will be provided during 54900/57900.
Criminal Background Check Requirement

All incoming (new) students entering the clinical SLP master’s or AuD program are required to obtain the nationwide sex and violent offender check and multi-county criminal check as follows:

1. Go to www.CertifiedBackground.com and click on “Students.”
2. In the Package Code box, enter package code: PU12 (If you want an annual recheck during the course of your program you may enter PU12R).
3. Select a method of payment: Visa, MasterCard or money order. (The initial check will cost $33.00, and a recheck is ~$25.00.)

Once the order is submitted, you will receive a password via email to view and print the results of the background check. Please print and submit the results to Vicki Parker-Black by September 26. Although 95% of background check results are completed within 3-5 business days, some results may take longer. To see the order status, return to CertifiedBackground.com with the password. The order will show as “In Process” until it has been completed in its entirety. Authorized persons in Teacher Education at Purdue University may also securely view student results online.

Criminal Background Check procedures continue to evolve for the state and employment sites. Employees should expect to be required to purchase criminal history checks for employment and throughout their careers. Criminal records may have an adverse effect on an individual’s ability to obtain and continue employment. In addition, the state may hold a hearing to permanently revoke the license of individuals who have specific convictions.

If a student has a criminal record, it is essential that he/she contact Claudia Mornout, Director of Clinical Education in SLP (SLP students) or Jennifer Simpson, Director of Clinical Education in Audiology (AuD students) to discuss how to manage potential consequences for student teaching and/or externship placement.

All current students (II year SLP Master’s and II and II year AuD students) are required to obtain the Limited Adult Criminal History check from the Indiana State Police as follows:

1. Complete the form included in the Manual (on the next page)
2. Fill out the identifying information. Be sure to use your home address (not Lyles-Porter Hall).
3. Reason for Search is “employment”.
4. Check box #1 (Has applied for employment with a non-criminal justice organization or individual.”)
5. Mail it (address on back of form) with your money order for $7.00
6. You will receive your letter in the mail in about three weeks
   a. If you do not receive the letter, please call the number on the form to inquire about the status
4. Turn in a copy of the letter to Vicki Parker-Black by September 26.
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Indiana State Police
Criminal History Information
Limited Criminal History
& Fee Exemption
317-233-5424
www.IN.gov/ISP

PLEASE TYPE OR PRINT ALL INFORMATION

RECORD CHECK ON:

Last Name

First Name

M.I

Date of Birth MM/ DD / YYYY

M = Male
F = Female

W = White
B = Black
U = Unknown
M = Multi Racial
I = American Indian/ Alaskan
A = Asian / Pacific Islander

Reason for Search:

Private Adoption, Employment, Licensing (type), etc.

Daytime Phone Number

Name (where this response will be sent)

Mailing Address:

City, State, ZIP Code

ATTENTION:

Limited Criminal History Information – Reason for Request

The cost is $7.00. Mark an “X” in one box below for this request. Certified check or money order must be enclosed if request is mailed. Cash will be accepted only in person. [Correct Change]

(1) □ Has applied for employment with a non-criminal justice organization or individual;

(2) □ Has applied for a license or is maintaining a license; and has provided criminal history data as required by law to be provided in connection with the license;

(3) □ Employment with a state or local governmental entity;

(4) □ Is a candidate for public office or a public official;

(5) □ Is in the process of being apprehended by a law enforcement agency;

(6) □ Is placed under arrest for the alleged commission of a crime;

(7) □ Has charged that his rights have been abused repeatedly by criminal justice agencies;

(8) □ Is the subject of judicial decision or determination with respect to the setting of bond, plea bargaining, sentencing, or probation;

(9) □ Has volunteered services that involve contact with, care of, or supervision over a child who is being placed, matched, or monitored by a social services agency, or a nonprofit corporation;

(10) □ Is employed by an entity that seeks to enter into a contract with a public school (as defined in IC 20-10.1-1-2) or a non-public school (as defined in IC 20-10.1-1-3), if the subject of the request is expected to have direct, ongoing contact with school children within the scope of the subject’s employment;

(11) □ Has volunteered services at a public school (as defined in IC 20-10.1-1-2) or non-public school (as defined in IC 20-10.1-1-3) that involve contact with, care of, or supervision over a student enrolled in the school; Student Teacher IC 5-2-5-5.

(12) □ Is being investigated for welfare fraud by an investigator of the Division of Family Resources, or a county office of the Division of Family Resources;

(13) □ Is being sought by the parent locator service of the Child Support Bureau of the Division of Family Resources;

(14) □ Is or was required to register as a sex and violent offender under IC 5-2-12; or

(15) □ Has been convicted of any of the following:

(A) Rape (IC 35-42-4-1), if the victim is less than eighteen (18) years of age.

(B) Criminal deviate conduct (IC 35-42-4-2), if the victim is less than eighteen (18) years of age.

(C) Child molesting (IC 35-42-4-3).

(D) Child exploitation (IC 35-42-4-4(b)).

(E) Possession of child pornography (IC 35-42-4-4(c)).

(F) Vicarious sexual gratification (IC 35-42-4-5).

(continued on page 2)
(G) Child solicitation (IC 35-42-4-6).
(H) Child seduction (IC 35-42-4-7).
(I) Sexual misconduct with a minor as a Class A or Class B felony (IC 35-42-4-9).
(J) Incest (IC 35-46-1-3), if the victim is less than eighteen (18) years of age.
(K) Attempt under IC 35-41-5-1 to commit an offense listed in clauses (A) through (J).
(L) Conspiracy under IC 35-41-5-2 to commit an offense listed in clauses (A) through (J).
(M) An offense in any other jurisdiction in which the elements of the offense for which the conviction was entered are substantially similar to the elements of an offense described under clauses (A) through (J).

A Subject
(16) ☐ is identified as a possible perpetrator of child abuse or neglect in an assessment conducted by the department of child services under IC 31-33-8; or
(17) ☐ is:
   (A) a parent, guardian or custodian of a child; or
   (B) an individual who is at least eighteen (18) years of age and resides in the home of the parent, guardian or custodian, with whom the department of child services or a county probation department has a case plan, dispositional decree, or permanency plan approved under IC 31-34 or IC 31-37 that provides for reunification following an out-of-home placement.

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**REASON FOR NO FEE REQUEST**

**Before checking any box below read the defined Indiana Code IC 10-13-3-36**

A. ☐ Has been in existence for ten (10) years and has a primary purpose of providing an individual relationship for a child with an adult volunteer, if the request is made as part of a background investigation of a prospective adult volunteer for the organizations; (i.e. Big Brothers & Big Sisters)

B. ☐ Home Health Agency (Copy of license must accompany this request).

C. ☐ Community mental retardation and other developmental disabilities centers, for purposes of IC 12-29. (Copy of CARF Certificate must be submitted with this request).

D. ☐ Is a supervised group living facility licensed under IC 12-28-5.

E. ☐ An area agency on aging designated under IC 12-10-1.

F. ☐ Community action agency (as defined in IC 12-14-23-2).

G. ☐ Owner operator of a hospice program licensed under IC 16-25-3.

H. ☐ Community mental health center (as defined in IC 7-2-38).

I. ☐ Department of Child Services (as defined in IC 1-3-27-1).

J. ☐ Is a School Corporation, Special Education Cooperative, or Nonpublic School (as defined in IC 20-18-2-12).

K. ☐ (1) The church or religious society is a religious organization exempt from federal income taxation under Section 501 of the Internal Revenue Code;

   (2) The request is made as part of a background investigation of a prospective or current adult volunteer; and

   (3) The employee or volunteer works in a nonprofit program or ministry of the church or religious society, including a child care ministry registered under IC 12-17-2-6.

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**WARNING PENALTY FOR MISUSE**

A non-criminal justice organization or individual receiving a limited criminal history may not utilize it for purposes other than those stated in the request or which deny the subject any civil right to which the subject is entitled. IC 10-13-3-27: Any person who uses limited criminal history for any purpose not specified in the request commits a Class A misdemeanor offense.

I affirm, under penalty of perjury, that the Limited Criminal History Information requested will be used as specified.

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**PRINT Name of Requester**

**Signature of Requester**

**Date (month, day, year)**

We accept certified check, money order, and cash in person only. **“NO” personal checks.**

All checks made payable to the STATE OF INDIANA.

Mail request to:

Indiana State Police, Criminal History Limited Check  
P.O. Box 6188  
Indianapolis, Indiana 46206-6188

State Form 8053(R10/4-12)  
Approved by State Board of Accounts, 2012

Stock #575
PHOTO RELEASE FORM

I, the undersigned, do hereby grant to Purdue University and the Trustees of Purdue University, its employees, officers, agents, representatives, trustees and assigns [“Purdue”] my permission to record my photographic image (by film and/or video), and comments (by tape and/or transcription), together with the right to use, publish, copyright and reproduce in whole or in part any such photographic images and comments as described above for use in promotional materials, whether the use of above materials be for public relations, recruitment, development, or any other legitimate purpose of Purdue. I hereby waive any right that I may have to inspect or approve any such photographic images and comments or completed products which incorporate all or part of any such photographic images and comments.

I hereby voluntarily release and hold harmless Purdue from any and all liability arising out of or in any way related to the use of such photographic images and comments, including but not limited to any liability arising by virtue of any blurring, distortion, alteration, illusion, editing, or use in composite form, whether intentional or otherwise, that may occur in the making or processing of the finished product.

_____________________________  _______________________________
Signature                                               Name (printed)

_____________________________
Date:
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NOTICE OF PRIVACY PRACTICES FOR PURDUE HEALTHCARE PROVIDERS

This notice describes how medical information about you may be used and disclosed, and how you can get access to this information. Please review it carefully. If you have any questions about this Notice, please contact:

Privacy Officer
Purdue University
West Lafayette, IN
Telephone: (765) 496-1927
e-mail: hipaa-privacy@purdue.edu

WHO MUST COMPLY WITH THIS NOTICE

This Notice applies to the following departments that provide health care services to students, faculty and others including but not limited to: the Purdue University Student Health Center in West Lafayette, the Purdue Pharmacy, and Purdue’s SLHS Audiology and Speech-Language Clinics. It also applies to the following portions of the University that provide business support to the listed health providers: Bursar, Student and Receivables Business Services-Accounts Receivable, Student and Receivables Business Services-Loans, Internal Audit, Information Technology at Purdue (partial), Public Records Office, Risk Management, Environmental Health, Pharmacy IT, Center for Medication Safety Advancement, SLHS Business and Main Offices, SLHS Electronics and Technical Support, Technology Statewide Business Offices, Purdue Extended Campus-Division of Online Learning, University Counsel and designees and certain other members of University administration for risk management and legal purposes. For convenience, the listed health care providers and the listed business support groups will be referred to in this Notice as “Health Care Providers.” The full list of covered components at Purdue University may be found at the following web site: http://www.purdue.edu/hipaa. This Notice does not apply to the remainder of Purdue’s departments and schools.

Purdue’s Health Care Providers are legally required to protect the privacy of your health information and to provide you with a notice of privacy practices. This Notice describes how the Health Care Providers may use and disclose your protected health and medical information. It also describes some rights you have regarding your health information. Health information is information about you that is received, used, or disclosed by Purdue’s Health Care Providers concerning your physical or mental health, health care services provided to you, or your health insurance benefits and payments. Protected health information may contain information that identifies you including your name, address and other identifying information.

HOW WE MAY USE AND DISCLOSE YOUR PROTECTED HEALTH INFORMATION

Mental health information, including psychological or psychiatric treatment records and psychotherapy notes, and information relating to communicable diseases, including HIV records, are subject to special protections under Indiana law. We will generally only release such records or information with your written authorization or with an appropriate court order. Alcohol and drug abuse treatment information is also subject to special protections under federal law. We will usually need to get your written authorization or an appropriate court order before we release this information. Except where there are special protections under Indiana law or other federal laws, we may use and disclose your health information without your authorization.
for the following purposes:

**For treatment.**
The Health Care Providers may use and disclose your health information to provide or assist with your treatment. For example, we may provide your health information to a laboratory in order to obtain a test result important for diagnosing or treating a condition you may have.

**To obtain payment for health care services.**
We may use and disclose your health information in order to bill and collect payment for the treatment and services provided to you. For example, we may provide limited portions of your health information to your health plan to get paid for the health care services we provide to you, unless you have paid for the health care service in full and specifically request us not to disclose information related to that service. We may also provide your health information to our business associates who assist us with billing, such as billing companies, claims processing companies, and others that process our health care claims. We will only disclose the minimum amount of information needed to obtain payment.

**For health care operations.**
Your health information may also be used or disclosed to improve and conduct health care operations. For example, we may use your health information in order to evaluate the quality of healthcare services that you received or to evaluate the performance of the Health Care professionals who provided health care services to you. We may also provide your health information to our auditors, attorneys, consultants, and others in order to make sure we are complying with the laws that affect us. We may also use a sign-in sheet at registration or other appropriate areas, and we may call you by name in waiting and service areas.

**When disclosure is required by federal, state, or local law, judicial or administrative proceedings, or law enforcement.**
For example, we make disclosures when a law requires that we report information to government agencies and law enforcement personnel about victims of abuse, neglect, or domestic violence; when dealing with gunshot and other wounds; or when ordered in a judicial or administrative proceeding.

**Public health activities.**
For example, we report required information about various diseases to government officials in charge of collecting that information, and we may provide coroners with necessary information relating to an individual’s death.

**Health oversight activities.**
For example, we will provide information to assist the government when it conducts an investigation or inspection of a health care provider or organization.

**Research purposes.**
In certain limited circumstances, we may provide health information in order to conduct medical research. Use of this information for research is subject to either a special approval process or removal of information which may directly identify you. In most instances, we will require your written authorization prior to using or disclosing health information for research purposes.
Avoiding a serious threat of harm.
In order to avoid a serious threat to the health or safety of a person or the public, we may provide health information to law enforcement personnel or persons able to prevent or lessen such harm.

Certain government functions.
We may disclose health information of military personnel and veterans in certain situations, as well as for national security purposes or when required to assist with governmental intelligence operations.

Workers’ compensation.
We disclose health information to comply with workers’ compensation laws.

Appointment reminders and health-related benefits or services.
We may use health information to provide appointment reminders, or give you information about treatment alternatives, other healthcare services or benefits we offer.

Business Associates.
We will share your health information with business associates that assist our Health Care Providers. Business associates include people or companies outside of Purdue who provide services to our Health Care Providers. For example, health information may be disclosed by the Student Health Center to a bill processing company to obtain payment for services rendered. Purdue’s business associates and their subcontractors must comply with the HIPAA laws, and we have agreements with our business associates to protect the privacy and security of your health information.

Disclosures to family, friends, or others.
In very limited cases, we may provide health information to family members, or close friends who are directly involved in your care or the payment for your health care, unless you tell us not to. For example, we may allow a friend or family member to pick up a prescription for you and, if you don’t object, we may share discharge instructions with a family member or friend who accompanied you to your visit. We may also contact a family member if you have a serious injury or in other emergency circumstances. We may discuss medical information in the presence of a family member or friend if you are also present and indicate that it is okay to do so.

Communication for Marketing Purposes and Sale of Protected Health Information
In the case where we may wish to market health-related products or services to you or receive financial assistance in making the communication or in the case where costs are reimbursed to the clinic in exchange for sharing your health information, we will ask for your written authorization before using or disclosing any of your health information for these purposes.

All other uses and disclosures require your prior written authorization.
In any other situation not described above, we will ask for your written authorization before using or disclosing any of your health information. If you do sign an authorization to disclose your health information, you can later revoke that authorization in writing. This will stop any future uses and disclosures to the extent that we have not taken any action relying on the authorization.
RIGHTS YOU HAVE REGARDING YOUR HEALTH INFORMATION

The Right to Request Limits on Uses and Disclosures of Your Health Information.
You have the right to ask that Purdue’s Health Care Providers limit the use and disclosure of your health information. If you or another family member or person on your behalf have paid your health care provider in full for a particular health care service or item and specifically request that we not disclose information about this health care item or service to your health plan for payment or healthcare operations purposes, we will agree to this request. We generally cannot restrict disclosure of information needed for health care treatment purposes. For other restrictions, we will consider your request but we do not have to accept it. If we do, we will put any limits in writing and abide by them except in emergency situations where the information is needed. You may not limit the uses and disclosures that we are legally required to make.

The Right to Choose How We Send Health Information to You.
You have the right to ask that we send your health information to you at an alternate address (for example, sending information to your work address rather than your home address) or by alternate means (for example, by fax instead of regular mail). We must agree to your request if we can easily provide it in the format you requested.

The Right to See and Get Copies of Your Health Information.
In most cases, you have the right to look at or get copies of your health information that we have, but you must make the request in writing. You can also view or obtain copies of your lab test results if they are complete and part of your medical or mental health record by viewing on the patient portal, if available, or by making the request for a copy, in writing. If we use an outside laboratory for lab testing, you can request test results directly from the lab, if the testing is complete. We will give you the contact information for the external lab, if you request it. If we maintain an electronic copy of your medical, mental health or billing records, and you request an electronic copy of your record, we will provide you with access to the electronic information in the electronic format requested by you, if it is readily producible, or, if not, in a readable electronic format as agreed to by Purdue’s Health Care Providers and you. If requested, we will transmit an electronic copy to an entity or person designated by you. If we do not have your health information but we know who does, we will tell you how to get it. We will respond to you within 30 days after receiving your written request. In certain situations, we may deny your request. If we do, we will tell you, in writing, our reasons for the denial and explain your right to have the denial reviewed. If you request copies of your health information, we will charge you a reasonable fee as permitted by Indiana law. Instead of providing the health information you requested, we may provide you with a summary or explanation of the health information. We will only do this if you agree to receive information in that form and if you agree to pay the cost in advance.

The Right to Get a List of Certain Disclosures We Have Made.
You have the right to request a list of instances in which we have disclosed your health information. The list will not include uses or disclosures made for treatment, payment, and health care operation, or information given to your family or friends with your permission or in your presence without objection. It will also not include disclosures made directly to you or when you have given us a written authorization for the release of health information. The list will also not include information released for national security purposes or given to correctional institutions. To obtain this list, you must make a request in writing to the Privacy Officer listed at the top of
this notice. The list we will give you will include disclosures made in the last six years unless you request a shorter time. We will provide the list to you upon request once each year at no charge.

**The Right to Amend or Update Your Health Information.**
If you believe that there is a mistake in your health information or that a piece of important information is missing, you have the right to request that we amend the existing information. You must provide the request and your reason for the request in writing to the Privacy Officer listed at the top of this notice. We may deny your request in writing if the health information is: 1) correct and complete; 2) not created by us; 3) not allowed to be disclosed, or 4) not part of our records. Our written denial will state the reasons for the denial and explain your right to file a written statement of disagreement with the denial. If you do not file a statement of disagreement, you have the right to ask that your request and our denial be attached to all future disclosures of your health information. If we approve your request, we will make the change to your health information, tell you that we have done it, and tell others that need to know about the change to your health information.

**The Right to Receive Breach Notification.**
If any of Purdue’s Health Care Providers or any of its Business Associates or the Business Associate’s subcontractors experiences a breach of your health information (as defined by HIPAA laws) that compromises the security or privacy of your health information, you will be notified of the breach and about any steps you should take to protect yourself from potential harm resulting from the breach.

**The Right to Get This Notice by E-Mail.**
You have the right to get a copy of this Notice by e-mail. Even if you have agreed to receive this Notice via e-mail, you also have the right to request a paper copy of this Notice.

**CHANGES TO THIS NOTICE**
Purdue’s Health Care Providers are required to abide by the terms of this Notice of Privacy Practices. However, we may change our notice at any time. The new notice will be effective for all protected health information maintained by the covered Health Care Providers of Purdue. A revised Notice of Privacy Practices will be posted at the main entrances to our covered healthcare provider areas, may be requested from the Privacy Officer listed at the top of this notice, and may be found on our website at [www.purdue.edu/hipaa](http://www.purdue.edu/hipaa).

**WHAT TO DO IF YOU BELIEVE YOUR PRIVACY RIGHTS HAVE BEEN VIOLATED**
If you think that we may have violated your privacy rights, or you disagree with a decision we made about your health information, you may file a complaint with our Privacy Officer at the telephone number or e-mail address listed at the top of this notice. You also may send a written complaint to the Secretary of the Department of Health and Human Services. Further information about how to file a complaint is available from the Privacy Officer. We will not punish you or retaliate against you if you file a complaint about our privacy practices.

**EFFECTIVE DATE OF THIS NOTICE**
This notice applies to uses and disclosures of your protected health information beginning on August 22, 2014.
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**Fall 2014 Risk Management Post-Test**  
Department of Speech, Language, and Hearing Sciences

<table>
<thead>
<tr>
<th>True or False</th>
<th>Statement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>True or False</td>
<td>Gloves should be washed after contact with human blood and before going in to see another client.</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>The color of bags used for disposal of hazardous waste is red.</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>Hand washing is not necessary if gloves are worn</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>You can tell if someone has MRSA by looking at them</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>Universal Precautions will protect workers from exposures to all human pathogens.</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>HIV is more readily transmissible than HBV.</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>The probability of being exposed to tuberculosis in the United States has become greater because of rapidly increasing numbers of cases.</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>Universal precautions means you treat all blood and other potentially infectious body fluids like they are infected.</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>According to the new CDC guidelines new employees and affiliated students do not need to be skin tested unless exposed to a patient with tuberculosis.</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>QuantiFERON Gold is a blood test for hepatitis C.</td>
<td></td>
</tr>
<tr>
<td>True or False</td>
<td>Hand sanitizer is effective in eliminating C-Diff</td>
<td></td>
</tr>
</tbody>
</table>

Which bloodborne disease can be prevented through vaccination?
  1. Hepatitis B
  2. HIV
  3. Hepatitis C

How long after constitution is a bleach/water mixture usable?

Describe what gloves just removed from your hands should look like?

**TOTAL** /14
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Background
1992 OSHA [Occupational Safety and Health Administration] Regulation requires that employers:
- safeguard employees with regard to occupational exposure to bloodborne pathogens
- provide annual training for all who may have occupational exposure to blood or other potentially infectious materials
- Needlestick Safety and Prevention Act added in 2001; focuses on safer medical devices to prevent needlestick injuries since this is major source of occupational exposure
- additionally, as professionals, we have a responsibility to protect our clients, our fellow employees and ourselves

Employer Responsibilities
- provide work environment that minimizes risks (examples: redesign equipment & processes)
- increase employees awareness of what places them at increased risk of exposure
- teach employees how to decrease risks by use of Universal Precautions
- make sure employees know how to respond [quickly] when exposed
- provide protective devices as necessary for specific activities (examples: gloves when handling blood, goggles when anticipating splashing of potentially infectious fluids)
- evaluate safer medical devices (safety-engineered sharp devices & needless systems), seeking non-managerial (e.g., frontline) healthcare worker input
- maintain detailed sharps injury log
- review exposure plan annually to reflect changes in sharps safety technology
- offer tuberculosis skin testing and/or hepatitis B vaccine when employees judged to be at risk of workplace exposure
- intervene when exposure occurs (examples: blood testing, administration of immune globulin, establish testing schedule)

Premise of Universal Precautions
ALL blood and certain body fluids are to be treated as infectious. One CANNOT determine by looking at individuals if they have a bloodborne disease.

Intent of Using Universal Precautions
Prevent the spread of disease-causing microorganisms among persons by interrupting chain of infection. Spread requires three elements: source of infecting organism, susceptible host, and means for organism to get to susceptible host.

What are bloodborne pathogens?
Disease-causing microorganisms that may be present in the blood, including
- HBV (Hepatitis B Virus)
- HCV (Hepatitis C Virus)
- HIV (Human Immunodeficiency Virus) that causes AIDS

What is Hepatitis B?
- one of a number of viruses that affects the liver causing weakness, fatigue, loss of appetite, nausea, abdominal pain, fever, headache, & in some cases, jaundice (yellow discoloration of the skin and sclera)
Statistics:
- In 2010, 3,350 acute cases reported to the Centers for Disease Control and Prevention (CDC) compared to 3,405 cases in 2009. CDC estimates the actual number of acute clinical cases to be closer to 13,000 and the number of new infections (many of whom have NO noticeable symptoms) at 43,000.
- 4.3 – 5.6% of total population has been infected with Hepatitis B at some time in life.
- Highest rate of disease occurs in 20-49-year-olds; greatest decline in disease numbers are among children and adolescents due to routine hepatitis B vaccination.
- Estimated 800,000 - 1.4 million chronically infected Americans, of whom 20-30% acquired their infection in childhood (http://www.cdc.gov/hepatitis/Statistics.htm)
- Annual number of chronic liver disease deaths associated with viral hepatitis ~ 3,000
- Indiana had 63 cases (provisional data) reported in 2009 and 55 cases in 2008
- typically a person’s blood will test positive for HBV surface antigen within 2-6 wks after symptoms of illness
- important source of infection: chronic carriers, individuals who can unwittingly transmit HBV to susceptible individuals via needle or other penetrating injury and intimate sexual contact
- mode of transmission – bloodborne, sexual, or perinatal (mother to baby)
- individuals who are chronic hepatitis B carriers (typically healthy individuals who carry the virus in their bloodstream & can pass the virus on to others) can seek additional information through the Hepatitis B Foundation at www2.hepb.org or the National Center for Infectious Diseases at www.cdc.gov/ncidod

What is Hepatitis C?
- virus that may be implicated in occupational disease exposure, but not well understood
- most efficiently transmitted by large, repeated exposures to blood (intravenous drug user, transfusion recipient before 1990, hemophilia treated with products made prior to 1987)
- Intravenous drug use is the strongest predictor of HCV infection
- probably somewhere between HBV and HIV in risk of transmission; with HBV having the greatest likelihood and HIV the lowest
- Statistics:
  - 2.7- 3.9 million (1.3 -1.8%) Americans chronically infected with HCV (http://www.cdc.gov/hepatitis/Statistics.htm)
  - Reporting system has been modified to include only acute cases (not chronic) with a total of 850 reported cases in the US in 2010 down slightly from 878 in 2008. Numbers over time look inconsistent because we have modified case definitions and what actually counting …newly infected persons versus persons with evidence of past infection
  - According to CDC, Indiana reports 27 new cases for 2010 compared to 22 cases in 2009. Case rates highest in Hendricks, Parke, and Marion counties in 2009. (www.in.gov/isdh).
  - 67% of those infected develop chronic liver disease
  - Annual number of chronic liver disease deaths associated with HCV is 12,000
  - CDC estimates that 2-10% of hospitalized patients are HCV positive

What is Human Immunodeficiency Virus?
- infects immune system T4 blood cells, interfering with body’s ability to fight diseases
- responsible for the disease, Acquired Immunodeficiency Syndrome (AIDS); symptoms include night sweats, weight loss, fatigue, fever, swollen & painful lymph nodes, muscle or joint pain
- individuals infected with HIV may have no symptoms or be able to control symptoms with medications for long periods of time, > 8-10 years
- median time for sero-conversion of blood to positive, 25-46 days; rarely up to 12 months
Statistics:
- CDC estimates that 1 to 1.2 million persons in US are living with HIV/AIDS with 24-27% undiagnosed or unaware of HIV infection. New infections in 2009 were an estimated 48,100.
- Men having sex with men (MSM) is the largest transmission group [1st] followed by injection drug use [2nd], MSM who also inject drugs [3rd], and high risk heterosexual contact [4th].
- Top 10 states (new cases in 2009): NY, FL, CA, TX, NJ, GA, IL, MD, NC, PA
- Top 10 states (cumulative through 2009): NY, CA, FL, TX, NJ, GA, IL, PA, MD, PR
- IN cumulative totals through December 31, 2011: 4,628 living with HIV and 5,625 living with AIDS. MSM (60%) and IV drug users (10%) plus additional 10% who are both MSM & IV drug user are largest risk groups. (ISDH HIV/STD, 2010)

What is an Exposure?
- Percutaneous injury, needlestick or cut with a sharp object that is contaminated with blood or other body fluid considered potentially infectious
- Contact of mucous membrane with blood or other potential infectious body fluid
- Contact of non-intact skin (e.g., chapped or abraded) with blood or other potentially infectious body fluid
- Contact of intact skin with blood or other potential infectious body fluid for prolonged (> three minutes) period and over an extensive area

Potentially infectious = blood, semen, vaginal secretions, & body fluids contaminated with visible blood [known as OPIM, other potentially infectious material]
Undetermined risk = cerebrospinal, synovial, pleural, peritoneal, pericardial, & amniotic fluids

Risk for Infection After Exposure?
- MOST exposures do NOT result in infection. Risk varies with kind of exposure (organism’s ability to get into bloodstream), amount of blood involved in exposure, amount of virus in infected person’s blood at time of exposure & post-exposure actions taken along with the susceptible host’s own immune system
- HBV
  Those who have received the Hepatitis B vaccine and have developed immunity are at virtually NO risk for infection. For unvaccinated persons, risk from a single needlestick or a cut exposure ranges from 1-30% (HBeAg+ 22-30%; HBeAg- 1-6%).
- HCV
  Based on limited studies, average risk average is 1.8% (range 0-7%) from a single needlestick exposure. Risk following a blood splash is unknown, but believed to be very small; “HCV is not transmitted efficiently through occupational exposure.” (CDC, 2000).
- HIV
  Average risk after a needlestick or cut exposure is 0.25-0.4%; with 99.6% of exposures NOT leading to infection. Risk after exposure of eye, nose, or mouth is approximately 0.1%. There have been no documented cases of HIV transmission due to exposure involving a small amount of blood on intact skin. The risk may be higher if the skin is damaged, i.e., a recent cut, or contact involves a large amount of skin or very prolonged contact.
- Current statistics
  CDC estimates that there are 600,000-800,000 percutaneous and mucocutaneous exposures to blood or at-risk biological substances annually among health care workers.
  HBV 95% reduction in the incidence of HBV occupational exposure among health care workers since vaccine introduced. Health care workers have significantly lower rate than general adult population.
HCV 1 health care worker suspected of occupational exposure infection; may be higher
HIV as of December 2002 [last time stats published], 57 documented cases with an additional
139 possible cases of occupationally acquired HIV infection since reporting began in
1985 [80% of exposures in health care workers are accidental needlesticks]; 26 of the 57
have developed AIDS. Profile of the 57 cases:
- category of worker – 19 lab workers, 24 nurses, 6 physicians, 2 surgical technicians,
  1 dialysis technician, 1 respiratory therapist, 1 health aide, 1 embalmer, 2
  housekeepers/maintenance workers
- type of contact – 48 percutaneous/puncture/cut injury [44 of whom were collecting
  blood or inserting an IV catheter], 5 mucoustanteous [splash onto source of virus – 49
  contact with HIV-infected blood, 3 contact with concentrated HIV virus in
  laboratory, 1 contact with body fluid visibly contaminated
  with blood, 4 unknown contact
- few situations in which environmental surfaces play much of a role in
  the spread of disease; contact with PEOPLE is the biggest risk factor

Exposure Prevention Checklist
- frequent handwashing – before and after contact with clients. NOTE: gloves are NOT a
  substitute for handwashing (hand hygiene)
  - wash at least 10 –15 seconds with soap, water, & friction; rinse at least 10 –15
    seconds
  - alcohol-based hand rubs have been found to promote better hand washing in health care settings,
    amount to use varies from product to product

The Centers for Disease Control and Prevention (CDC)'s Healthcare Infection Control Practices
Advisory Committee and Hand Hygiene Task Force recommendations are as follows (2002) [http://www.cdc.gov/handhygiene/]:

1. "Caregivers should wash hands with a non-antimicrobial soap and water or an anti-microbial
   soap and water when hands are visibly dirty or contaminated with proteineous material, such
   as blood or feces"
2. "If hands are not visibly soiled, caregivers should use an alcohol-based waterless antiseptic
   agent for routinely decontaminating hands"
   - OSHA’s response to antiseptic hand cleaners, “OSHA interprets this [CDC guidelines] to
     mean that when an employee is removing gloves and has had contact, meaning occupational
     exposure to blood or other potentially infectious materials (OPIM), hands must be washed
     with an appropriate soap and running water. If a sink is not readily accessible (e.g., in the
     field) for instances where there has been an occupational exposure, hands may be
     decontaminated with a hand cleanser or towelette, but must be washed with soap and running
     water as soon as feasible. If there has been no occupational exposure to blood or OPIM,
     antiseptic hand cleansers may be used as an appropriate ‘handwashing’ practice.” (03/31/03,

- use of personal protective equipment – gloves, goggles, face shields;
  provides a barrier between well person & potentially infectious person
Use gloves if
- reasonable expectation will have contact with client’s blood or other potentially infectious material
- will have contact with mucous membranes or non-intact skin
- if handling items or surfaces soiled with blood or other potentially infectious materials

**Glove protocol**
- disposable gloves are SINGLE use item
- do not wash hands after put on gloves
- remove gloves by grasping top edge & peeling off, turning inside out
- wash hands after removing gloves
- be alert for latex allergies & for those using gloves as substitute for handwashing

**Use goggles/safety glasses/face shields if**
- splashing or spraying of blood or other potentially infectious materials on nasal, oral, or eye mucosa is possible

**Use gowns or aprons if**
- involved in a procedure that is likely to generate splashes of blood or other potentially infectious materials

**Use a mouthpiece if**
- doing mouth-to-mouth resuscitation

**IMPROVISE** if necessary equipment not available, considering any possible barrier between yourself and others blood or potentially infectious materials.

- **immunization for HBV if expected to have occupational contact with blood**
  - contraindicated if allergy to yeast
  - can be given to pregnant woman with physician approval
  - no vaccine totally without side effects; read informed consent and weigh risks!

- **avoid opportunities to handle another individual’s blood or body fluids**
  - if client has a nosebleed, for example, instruct them to squeeze own nostrils
  - place infectious waste in impervious containers labeled with biohazard symbol, of sufficient strength to prevent expulsion; handle waste as little as possible
  - clean contaminated working surfaces with sodium hypochlorite/household bleach solution [1 part bleach to 10 parts water, or 1½ cups per gallon of water; lasts ONLY 24 hours once mixed] or use EPA/FDA hospital-grade disinfectant (alcohol is *not* effective). A listing of approved disinfectants is available at the National Antimicrobial Information Network’s website at http://nain.orst.edu/
  - routine cleaning of walls, floors and other environmental surfaces can be done using a 99 parts water to 1 part bleach, or ¼ cup bleach to 1 gallon of water prepared daily. Note: bleach is corrosive to metals, particularly aluminum.
  - headphones do NOT have to be decontaminated unless visibly soiled with blood or other potentially infectious wastes.
  - never blindly reach into any container that contains sharps or potential sharps
  - clean up broken glass with dust pan & brush, cardboard, tongs, NOT hands
  - when cleaning up a spill of blood, carefully cover the spill with paper towels/rags, then gently pour the 10% solution of bleach over the towels/rags, and leave it for at least 10 minutes. This will help ensure that any bloodborne pathogens are killed before you
actually begin cleaning or wiping the material up. By covering the spill with paper
towels/rags, you decrease the chances of causing a splash when you pour the bleach on it.
- if you are decontaminating equipment or other objects, you should leave the disinfectant
  in place for at least 10 minutes before continuing the cleaning process.
- any materials you use to clean up a spill of blood or potentially infectious materials must
  be decontaminated immediately, as well. This would include mops, sponges, re-usable
  gloves, buckets, pails, etc.

Note: regulated waste in Indiana is defined as liquid or semi-liquid blood or other potentially
infectious fluids that would be released from an item if compressed.

For additional information on regulated waste see Indiana Administrative Code 410 IAC,
Communicable Disease Control and the Indiana Department of Environmental Management website,
www.in.gov/idem

- if working in an area where there is a reasonable likelihood of exposure, do not
  - eat
  - drink
  - smoke
  - apply cosmetics or lip balm
  - handle contact lenses

No food or drink should be kept in refrigerators, freezers, shelves, cabinets, or on counter tops where blood or
potentially infectious materials are present.

These actions provide an increased opportunity for cross-
contamination.

If Bloodborne
Exposure Occurs

Immediately
- wash area vigorously with soap & clean water
- flush splashes to nose, mouth, or skin with clean water
- irrigate eyes with clean water, saline, or sterile irrigants
- report exposure to Mary Lou Poole, -43823
  or Lata Krishnan, -46842
- complete necessary paperwork

Prompt reporting is critical because post-exposure treatment
may be recommended and should be started ASAP. Student
Health Service is responsible for follow-up on campus.
Guidelines (2005) available at
http://www.cdc.gov/mmwr/PDF/rr/rr5409.pdf

Notes:
- Listing of EPA-registered Disinfectants available at
  http://www.epa.gov/oppad001/chemregindex.htm

• Healthcare-associated Infections (HAIs) … CDC website: [http://www.cdc.gov/hai/](http://www.cdc.gov/hai/)


7/14 E. RICHARDS earichards@purdue.edu
Tuberculosis Training

Basic Concepts:
- airborne transmission, must share air space. Person with pulmonary TB coughs, laughs, sings or sneezes the *mycobacterium tuberculosis* into the air. The bacilli are subsequently inhaled by a second party. If the bacilli become lodged in the alveoli of the lung, the individual becomes infected, now labeled “latent TB infection”. This does not mean that the person necessarily develops TB, the disease:
  - 10% of the infected population will go on to develop the disease tuberculosis
  - 5% develop active disease shortly after infection and the other 5% develop the disease at some later time, often much later when the body’s immune system begins to wear down, i.e., old age or acquire other diseases that alter the immune system
- primarily involves the lungs, but can involve other body organs & tissues
  - 15% of TB cases are extrapulmonary - symptoms depend on the site affected
- Pulmonary TB is suspected if a person has 1) productive, prolonged cough of a duration of > 3 weeks, 2) chest pain, 3) hemoptysis or coughing up blood, 4) fever, 5) chills, 6) night sweats [drenching], 7) easy fatigability, 8) loss of appetite, & 9) weight loss
- Multi-Drug Resistant Tuberculosis (MDR TB) … some of the TB drugs are ineffective; Extensively Drug-Resistant Tuberculosis (XDR TB) … strain of TB resistant to almost all drugs used to treat TB, including the 2 best 1st-line drugs: isoniazid and rifampin and 2nd line medications.
  - Opportunity for drug resistant TB increases with history of noncompliance with TB drugs, get TB after having taken TB drugs in past, come from areas where drug-resistant TB common (Russia, for example), and/or spent time with someone known to have drug-resistant TB disease.

Potential for Occupational Exposure:
- infectiousness varies [the ability of a person to transmit the disease to another person]; depends on number of tubercle bacilli expelled into the air, environmental conditions [air exchange], as does the condition of the respiratory system of the potential contact
  - typically not a casual contact but ongoing, prolonged contact.
- of particular concern are those cases of TB that are multidrug resistant because may remain infectious much beyond the typical period. Clients NOT considered infectious if:
  - have received adequate therapy for 2-3 weeks
  - have had three consecutive negative sputum smear results from sputum collected on different days
- amount of tuberculosis in the community important risk factor

Statistical Points of Interest:

<table>
<thead>
<tr>
<th>United States</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>26,673 cases (10.5/100,000 population)</td>
</tr>
<tr>
<td>2009</td>
<td>12,898 cases (4.2/100,000 population)</td>
</tr>
<tr>
<td>2011</td>
<td>10,521 cases (3.4/100,000 population)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Indiana</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>247 cases (4.4/100,000 population)</td>
</tr>
<tr>
<td>2009</td>
<td>119 cases (1.9/100,000 population)</td>
</tr>
<tr>
<td>2011</td>
<td>100 cases (1.5/100,000 population)</td>
</tr>
</tbody>
</table>

- 59% of US cases among foreign-born
  - 5 countries = 54% of cases (Mexico, Philippines, China, India and Vietnam)
- 8% of cases also infected with HIV
- # of multi-drug resistant TB cases worldwide increasing (US reported 125 cases with almost 500,000 cases across the globe; Indiana had 2 cases in 2011)
- 55 of Indiana’s 2009 cases were among foreign-born; 71% males; 48% whites, 28.5% blacks, 22% Hispanics, and 23.5% Asians (2009 data)
- IN Counties with ≥ 5 cases: Marion (30), Allen (12), Lake (11), Johnson (6) & Hendricks (5) (2011 data)
- Untreated person with active TB will typically infect 10-15 people in span of 1 year
- TB is a GLOBAL health problem
  - > 9 million cases/year with > 1.4 M deaths with (WHO estimate)
- long lag period between infection & disease, mobility of population & social factors (poverty, homelessness, etc) make control of this disease particularly challenging
- lack of adequate drugs and inadequate public health response remain challenges in a number of countries; therefore not unexpected that percentage of cases in US among foreign-borne continues to rise.
- WHO’s 2008 guidelines on air travel note that “available evidence indicates that the risk of transmission of M. tuberculosis onboard aircraft is low and limited to persons in close contact with an infectious case for 8 hours or longer.

Preventive practices based on airborne transmission:
- tiny particles, called droplet nuclei, released when a person with TB coughs, sneezes, sings, & talks. Each droplet approximately 1-5 microns in size (micron = one millionth of a meter).
- ventilation can reduce risk of transmission by diluting concentration of contaminants in room & by removing contaminates when air from room is either discharged outdoors or disinfected with a HEPA filter before re-circulation.
- seek advice from REM if there are questions regarding the ventilation system in Purdue facilities. Recommendations have been published by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
- health care professionals use carefully fitted personal respirators only in high-risk settings, i.e. visiting the home of an infectious TB client, carrying out procedures that stimulate coughing by persons at risk for TB.
- individuals with extrapulmonary TB typically not infectious. Children also not good transmitters of TB - do not have the forcefulness to get bacilli airborne when cough or sneeze.

☑ checklist for prevention:
- make sure working in a well ventilated area
- maintain good, overall health
- if working in setting with potential exposure to individuals with TB, seek skin testing or blood test at intervals recommended for that community
- if infected, follow recommendations for prophylactic treatment
- be alert for those who may be undiagnosed

Purpose of Skin Testing and Significance of Positive PPD Test:
- identifies persons infected with TB. Must have PPD (mantoux test) to determine infectiousness. Multiple puncture tests that are “positive” must be followed with PPD.
- Health care settings use a two-step initially (second TB skin test 1-3 weeks following the first) for health care workers as the 2nd test produces a more accurate result
• area of induration [palpable swelling] around the site of injection is the reaction to tuberculin. Redness, or erythema, is NOT measured.

> 5 mm considered positive if person
  ▪ known to have or suspected of having HIV
  ▪ x-ray suggestive of previous TB & did NOT receive adequate treatment
  ▪ recent contact to TB case
  ▪ has received organ transplant or on high doses of prednisone for immunosuppression

> 10 mm considered positive if person
  ▪ has diabetes, silicosis, cancer of head or neck, leukemia, Hodgkin’s disease, end-stage renal disease, chronic malabsorption syndrome, had a gastrectomy
  ▪ is 10% or more below ideal body weight,
  ▪ injects drugs
  ▪ recent arrival (within 5 years) from high-prevalence countries
  ▪ from a medically underserved or low-income population,
  ▪ is a resident or employee of a long-term care facility, correctional facility, homeless shelter or other high-risk congregate settings
  ▪ is a child < than four years of age or children exposed to adults at high risk
  ▪ belongs to a group identified within the local community as having increased prevalence [example, health care workers in a facility that cares for infectious TB patients]

> 15 mm is positive for those with no known TB risk factor
  ▪ no way to positively distinguish a reaction that is attributed to BCG (TB vaccine given in many countries other than the US) and TB infection. GENERALLY mean reaction size post BCG is < 10 mm and sensitivity wanes over time. Those with positive reaction (as outlined above) should be evaluated. This is where the blood test can be of particular value.

Note: generally takes 10 weeks after infection for person to develop measurable immune response and thus convert to a positive skin test. An increase of ≥ 10 mm of induration within a 2 year period, regardless of age, is considered a positive skin test conversion.

Blood Test:
• Quanti-FERON TB Gold blood test now available and can be used in place of skin test or as follow-up if have a positive skin test. Purdue is doing this blood test. While it can be used in any circumstance where skin test is used, it is particularly useful for those individuals who have had a positive PPD or have had BCG vaccine in the past. Test is approved for all persons, but use with individuals with impaired immune systems may lead to false responses. Blood samples must be processed within 12 hours of a blood draw. Fact sheet (10/2007): http://www.cdc.gov/tb/pubs/tbfactsheets/QFT.pdf

Responsibility to Seek Medical Evaluation:
• individuals who have a positive skin test need to be promptly followed in terms of blood test, chest x-ray and/or possible sputum smear. Chest x-rays are never diagnostic of TB but may be used to rule out the possibility of pulmonary TB in persons with a positive skin test but no symptoms.
• individuals with a history of a positive TB skin test and/or positive blood test should be monitored for the development of symptoms for tuberculosis; persons with latent tuberculosis infection [preferred diagnostic label] are source of majority of future TB cases if left unrecognized/untreated
• in general, persons under the age of 35 are more likely to be placed on preventive therapy of INH or other TB drugs. Those over age 35, depending upon individual factors, may not be placed on INH because of a concern regarding adverse reactions to the drug – individually evaluated. Some advocate that all healthcare workers, regardless of age, should be given preventive therapy.
Principles of Drug Therapy:

- TB is generally treated by initiating a four-drug regime. Once sensitivity tests are completed, therapy is individualized. Drug therapy may last 6-24 months.
- Problem with starting individuals on fewer drugs is the further development of drug resistant strains.
- 1st new pulmonary TB drug, priftin, approved in 25 years by FDA (will decrease numbers of doses needed per week, hopefully increasing medication compliance), Eli Lilly working on new drugs with a number close to being ready for use.
- TMC207 is a new drug in clinical trials; developed by a Johnson & Johnson subsidiary in Belgium. (New England Journal of Medicine, June 2009)
- Health department is responsible for collaborating with individuals to assure compliance with medication - compliance is a significant problem among individuals with TB. DOT, or directly observed therapy, is the preferred method -- a health care worker watches the individual swallow each dose of TB medication.
- Latent TB Infection usually treated with Isoniazid (INH) for 6-9 months

Importance of Notifying Health Department:

- Reporting TB to the local health department is required by law in every state
- Health department responsible for surveillance, contact investigation, & assuring compliance
- Locally, TB Clinic offered by Tippecanoe County Health Department

Higher Risk Associated with HIV Infection:

- HIV infection is the most significant known risk factor for the development of TB disease in persons with TB infection [~ 100 times greater risk].

Further Information:
1. Centers for Disease Control; web site: http://www.cdc.gov/nchstp/tb/
2. National TB Center; web site: http://www.nationaltbcenter.edu
4. Indiana State Department of Health; web site: http://www.in.gov/isdh
5. Tippecanoe County Health Department, 20 North 3rd Street, Lafayette, 765-423-9221


Centers for Disease Control and Prevention (2005). *Guidelines for Preventing the Transmission of Mycobacterium tuberculosis is Health-Care Settings, 2005* Available at cdc.gov


Occupational Safety and Health Administration (1996, February 6). *CPL 2.106 Enforcement Procedures & Scheduling for Occupational Exposure to Tuberculosis*. (available at osha.gov)

Centers for Disease Control and Prevention. *Morbidity and Mortality Weekly Reports (MMWR)*, multiple issues (available at cdc.gov)


7/14  E. Richards erichards@purdue.edu
# QuantiFERON®-TB Gold Test

## What is it?

The QuantiFERON®-TB Gold test (QFT-G) is a whole-blood test for use as an aid in diagnosing *Mycobacterium tuberculosis* infection, including latent tuberculosis infection (LTBI) and tuberculosis (TB) disease. This test was approved by the U.S. Food and Drug Administration (FDA) in 2005.

## How does it work?

Blood samples are mixed with antigens (substances that can produce an immune response) and controls. For QFT-G, the antigens include mixtures of synthetic peptides representing two *M. tuberculosis* proteins, ESAT-6 and CFP-10. After incubation of the blood with antigens for 16 to 24 hours, the amount of interferon-gamma (IFN-gamma) is measured.

If the patient is infected with *M. tuberculosis*, their white blood cells will release IFN-gamma in response to contact with the TB antigens. The QFT-G results are based on the amount of IFN-gamma that is released in response to the antigens.

Clinical evaluation and additional tests (such as a chest radiograph, sputum smear, and culture) are needed to confirm the diagnosis of LTBI or TB disease.

## What are the advantages?

- Requires a single patient visit to draw a blood sample.
- Results can be available within 24 hours.
- Does not boost responses measured by subsequent tests, which can happen with tuberculin skin tests (TST).
- Is not subject to reader bias that can occur with TST.
- Is not affected by prior BCG (bacille Calmette-Guérin) vaccination.

## What are the disadvantages and limitations?

- Blood samples must be processed within 12 hours after collection while white blood cells are still viable.
- There are limited data on the use of QFT-G in children younger than 17 years of age, among persons recently exposed to *M. tuberculosis*, and in immunocompromised persons (e.g., impaired immune function caused by HIV infection or acquired immunodeficiency syndrome [AIDS], current treatment with immunosuppressive drugs, selected hematological disorders, specific malignancies, diabetes, silicosis, and chronic renal failure).
- Errors in collecting or transporting blood specimens or in running and interpreting the assay can decrease the accuracy of QFT-G.
- Limited data on the use of QFT-G to determine who is at risk for developing TB disease.

## When should you use the test?

QFT-G can be used in all circumstances in which the tuberculin skin test (TST) is currently used, including contact investigations, evaluation of recent immigrants who have had BCG vaccination, and TB screening of health care workers and others undergoing serial evaluation for *M. tuberculosis*. However, caution should be used when testing certain populations because of limited data in the use of QFT-G.

Before the QFT-G is conducted, arrangements should be made with a qualified laboratory and courier service, if needed, to ensure prompt and proper processing of blood.
What are the steps in administering the test?

- Confirm arrangements for testing in a qualified laboratory and arrange for delivery of the blood sample in time for the laboratory to initiate testing within 12 hours of blood collection.
- Draw a sample of whole blood from patient into a tube with heparin anti-clotting agent, according to manufacturer’s instructions.
- Schedule an appointment for the patient to receive test results and, if then needed, medical evaluation and possible treatment for TB disease or LTBI.

How do you interpret test results?

Interpretation of QFT-G results is based on IFN-gamma concentrations in test samples. Each QFT-G result and its interpretation should be considered in conjunction with other epidemiological, historical, physical, and diagnostic findings.

A positive result suggests that *M. tuberculosis* infection is likely; a negative result suggests that infection is unlikely; and indeterminate result suggests QFT-G results cannot be interpreted as a result of low mitogen response or high background response.

A diagnosis of LTBI requires that TB disease be excluded by medical evaluation, which should include checking for signs and symptoms suggestive of TB disease, a chest radiograph, and, when indicated, examination of sputum or other clinical samples for the presence of *M. tuberculosis*.

Additional Information


Get-QFT (Locator site for Quantiferon®-TB Gold) [http://www.quantiferon.com](http://www.quantiferon.com)*

* This link is provided solely as a service to our users. It does not constitute an endorsement of the QFT-Gold testing institutions included on the website by CDC or the Federal Government, and none should be inferred. CDC is not responsible for the content found at this link.
Respiratory Protection in Health-Care Settings

Introduction

All health-care settings need an infection-control program designed to ensure prompt detection, airborne precautions, and treatment of persons who have suspected or confirmed tuberculosis (TB) disease. There are three levels of TB infection control in health-care settings. The first level of the infection-control hierarchy, administrative controls, should minimize the number of areas where exposure to Mycobacterium tuberculosis may occur.

The second level, environmental controls, should reduce the concentration of airborne M. tuberculosis. These administrative and environmental controls should also reduce, although they do not eliminate, the risk in the few areas where exposures can still occur (e.g., airborne infection isolation [AII] rooms and rooms where cough-inducing or aerosol-generating procedures are performed).

Because persons entering these areas may be exposed to airborne M. tuberculosis, the third level of the hierarchy is the use of respiratory protective equipment in situations that pose a high risk for exposure.

Considerations for Selection of Respirators

The overall effectiveness of respiratory protection is affected by 1) the level of respiratory protection selected (e.g., the assigned protection factor), 2) the fit characteristics of the respirator model, 3) the care in using the respirator, and 4) the adequacy of the training and fit-testing program.

Particulate filter respirators certified by the Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH) that can be used for protection against airborne M. tuberculosis include:

- Nonpowered respirators with N95, N99, N100, R95, R99, R100, P95, P99, and P100 filters (including disposable respirators); and
- Powered air-purifying respirators (PAPRs) with high-efficiency filters.

The most essential attribute of a respirator is the ability to fit the varying facial sizes and characteristics of health-care workers (HCWs). Assistance with selection of respirators can be done by referring to peer-reviewed research and through consultation with respirator fit-testing experts, CDC, occupational health and infection-control professional organizations, respirator manufacturers, and from participation in advanced respirator training courses.

Implementing a Respiratory Protection Program

If respirators are used in a health-care setting, the Occupational Safety and Health Administration (OSHA) requires the development, implementation, administration, and periodic reevaluation of a respiratory protection program. The most critical elements of a respiratory protection program include 1) assignment of responsibility, 2) training, and 3) fit testing. All HCWs who use respirators for protection against M. tuberculosis infection should be included in the respiratory protection program.

The health-care setting should develop a policy on the use of respirators by visitors. Visitors to AII rooms and other areas with patients who have suspected or confirmed infectious TB disease may be offered respirators (e.g., N95 disposable respirators) and should be instructed by an HCW on the use of the respirator before entering an AII room.
To be effective and reliable, respiratory protection programs must include at least the following elements:

- Assignment of responsibility to one person with sufficient knowledge who is given the authority and responsibility to manage all aspects of the program.
- Standard operating procedures that include information and guidance for the proper selection, use, and care of respirators.
- Screening by a physician or other licensed healthcare professional of all HCWs who might need to use a respirator for pertinent medical conditions at the time they are hired, and then re-screening periodically.
- Annual training of HCWs with specific focus on prevention, transmission, and symptoms.
- Selection of filtering facepiece respirators approved by CDC/NIOSH.
- Fit testing performed during the initial respiratory protection program training and periodically thereafter, in accordance with federal, state, and local regulations.
- Inspection and maintenance of respirators according to manufacturer instructions.
- Evaluation of the respirator program periodically to ensure its continued effectiveness.

Information on the development and management of a respiratory protection program is available in technical training courses that cover the basics of respiratory protection. Such courses are offered by OSHA, the American Industrial Hygiene Association, the American Conference of Governmental Industrial Hygienists, universities, manufacturers, and private contractors.

### References


### Additional Resources

**Websites:**

CDC Division of Tuberculosis Elimination: www.cdc.gov/tb

CDC National Institute for Occupational Safety and Health: www.cdc.gov/niosh/topics/tb

Occupational Safety and Health Administration: www.osha-slc.gov/SLTC/tuberculosis/index.html

State TB control offices: www.cdc.gov/nchstp/tb/pubs/tboffices.htm

American Industrial Hygiene Association: www.aiha.org

American Conference of Governmental Industrial Hygienists: www.aicgih.org

### Fact Sheet:

Infection Control in Health-Care Settings:
www.cdc.gov/nchstp/tb/pubs/tbfactsheets/ICHCS.htm

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**Note**

The Centers for Disease Control and Prevention (CDC) is not a regulatory agency; CDC recommendations on infection control provide evidence-based guidance. For regulations in your area, refer to state and local regulations and contact your local Occupational Safety and Health Administration (OSHA) office. A directory of OSHA offices may be found at www.osha-slc.gov/html/RAmap.html.
Interferon-Gamma Release Assays (IGRAs)

What are they?

Interferon-Gamma Release Assays (IGRAs) are whole-blood tests that can aid in diagnosing *Mycobacterium tuberculosis* infection, including both latent tuberculosis infection (LTBI) and tuberculosis (TB) disease. Two of the four IGRAs that have been approved by the U.S. Food and Drug Administration (FDA) are commercially available in the U.S. They are:

- QuantiFERON®-TB Gold In-Tube test (QFT-GIT);
- T-SPOT®.TB test (T-Spot)

How do they work?

IGRAs measure a person’s immune reactivity to *M. tuberculosis*. White blood cells from most persons that have been infected with *M. tuberculosis* will release interferon-gamma (IFN-g) when mixed with antigens (substances that can produce an immune response) derived from *M. tuberculosis*.

To conduct the tests, fresh blood samples are mixed with antigens and controls. The antigens, testing methods, and interpretation criteria for IGRAs differ (see Table 1).

What are the advantages of IGRAs?

- Requires a single patient visit to conduct the test.
- Results can be available within 24 hours.
- Does not boost responses measured by subsequent tests.
- Prior BCG (bacille Calmette-Guérin) vaccination does not cause a false-positive IGRA test result.

What are the disadvantages and limitations of IGRAs?

- Blood samples must be processed within 8-30 hours after collection while white blood cells are still viable.
- Errors in collecting or transporting blood specimens or in running and interpreting the assay can decrease the accuracy of IGRAs.
- Limited data on the use of IGRAs to predict who will progress to TB disease in the future.
- Limited data on the use of IGRAs for:
  - Children younger than 5 years of age;
  - Persons recently exposed to *M. tuberculosis*;
  - Immunocompromised persons; and
  - Serial testing.

**Table 1: Differences in Currently Available IGRAs**

<table>
<thead>
<tr>
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<th>QFT-GIT</th>
<th>T-Spot</th>
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<tr>
<td><strong>Format</strong></td>
<td>Process whole blood within 16 hours</td>
<td>Process peripheral blood mononuclear cells (PBMCs) within 8 hours, or if T-Cell Xtend® is used, within 30 hours.</td>
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<tr>
<td><strong>M. tuberculosis Antigen</strong></td>
<td>Single mixture of synthetic peptides representing ESAT-6, CFP-10 &amp; TB7.7</td>
<td>Separate mixtures of synthetic peptides representing ESAT-6 &amp; CFP-10</td>
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<tr>
<td><strong>Measurement</strong></td>
<td>IFN-g concentration</td>
<td>Number of IFN-g producing cells (spots)</td>
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<td><strong>Possible Results</strong></td>
<td>Positive, negative, indeterminate</td>
<td>Positive, negative, indeterminate, borderline</td>
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May 2011

Website - www.cdc.gov/tb

Page 1 of 3
What are the steps in administering an IGRA test?

Confirm arrangements for testing in a qualified laboratory, and arrange for delivery of the blood sample to the laboratory in the time the laboratory specifies to ensure testing of samples with viable blood cells.

- Draw a blood sample from the patient according to the test manufacturer’s instructions.
- Schedule a follow-up appointment for the patient to receive test results, and to arrange for further medical evaluation and possible treatment for LTBI or TB disease if needed.

How do you interpret IGRA test results?

IGRA interpretations are based on the amount of IFN-g that is released or on the number of cells that release IFN-g. Both the standard qualitative test interpretation (positive, negative, or indeterminate) and the quantitative assay measurements (Nil, TB, and Mitogen concentrations or spot counts) should be reported.

IGRAs [like tuberculin skin tests (TSTs)] should be used as an aid in diagnosing infection with *M. tuberculosis*. A positive test result suggests that *M. tuberculosis* infection is likely; a negative result suggests that infection is unlikely. An indeterminate result indicates an uncertain likelihood of *M. tuberculosis* infection. A borderline test result (T-Spot only) also indicates an uncertain likelihood of *M. tuberculosis* infection.

A diagnosis of LTBI requires that TB disease be excluded by medical evaluation. This should include checking for signs and symptoms suggestive of TB disease, a chest radiograph, and, when indicated, examination of sputum or other clinical samples for the presence of *M. tuberculosis*. Decisions about a diagnosis of *M. tuberculosis* infection should also include epidemiological and historical information.

Recommendations on when to use IGRA tests

- IGRA can be used in place of (but not in addition to) TST in all situations in which CDC recommends TST as an aid in diagnosing *M. tuberculosis* infection with preferences and special considerations noted below. This includes contact investigations, testing during pregnancy, and screening of health care workers and others undergoing serial evaluation for *M. tuberculosis* infection. Despite the indication of a preference, use of the alternative test (FDA-approved IGRA or TST) is acceptable medical and public health practice. Caution in interpretation should be used when testing certain populations because of limited data on the use of IGRAs (see Updated Guidelines for Using Interferon Gamma Release Assays to Detect *Mycobacterium tuberculosis* Infection, United States).

- Populations in which IGRA are preferred for testing:
  - Persons who have received BCG (either as a vaccine or for cancer therapy); and
  - Persons from groups that historically have poor rates of return for TST reading.

- TST is preferred over IGRA for testing children less than 5 years of age.

- As with TST, IGRA generally should not be used for testing persons who have a low risk of infection and a low risk of disease due to *M. tuberculosis*.

- Each institution and TB control program should evaluate the availability and benefits of IGRAs in prioritizing their use.
Recommendations on when to use IGRA tests (cont.)

- Routine testing with both TST and IGRA is not recommended. However, results from both tests might be useful in the following situations:
  
  o When the initial test is negative and:
    
    - The risk for infection, the risk for progression to disease, and the risk for a poor outcome are high (e.g., HIV infected persons or children under 5 years of age who are exposed to a person with infectious TB).
    
    - There is clinical suspicion for TB disease (e.g., signs, symptoms, and/or radiographic evidence suggestive of TB disease) and confirmation of *M. tuberculosis* infection is desired.
    
    - Taking a positive result from a second test as evidence of infection increases detection sensitivity.
  
  o When the initial test is positive and:
    
    - Additional evidence of infection is required to encourage acceptance and adherence (e.g., foreign-born healthcare workers who believe their positive TST is due to BCG). A positive IGRA might prompt greater acceptance of treatment for LTBI as compared with a positive TST alone.
    
    - The person has a low risk of both infection and progression from infection to TB disease. Requiring a positive result from the second test as evidence of infection increases the likelihood that the test reflects infection. An alternative is to assume, without additional testing, that the initial result is a false positive or that the risk for disease does not warrant additional evaluation or treatment, regardless of test results.

  o In addition, repeating an IGRA or performing a TST might be useful when the initial IGRA result is indeterminate, borderline, or invalid and a reason for testing persists.

Multiple negative results from any combination of these tests cannot exclude *M. tuberculosis* infection. Steps should be taken to minimize unnecessary and misleading testing of persons at low risk.

Selection of the most suitable test or combination of tests for detection of *M. tuberculosis* infection should be based on the reasons and the context for testing, test availability, and overall cost of testing.

Can IGRA Be Given To Persons Receiving Vaccinations?

As with TST, live virus vaccines might affect IGRA test results. However, the effect of live virus vaccination on IGRA has not been studied. Until additional information is available, IGRA testing in the context of live virus vaccine administration should be done as follows:

- Either on the same day as vaccination with live-virus vaccine or 4-6 weeks after the administration of the live-virus vaccine
- At least one month after smallpox vaccination

Additional Information

Hand Hygiene Guidelines Fact Sheet

• Improved adherence to hand hygiene (i.e. hand washing or use of alcohol-based hand rubs) has been shown to terminate outbreaks in health care facilities, to reduce transmission of antimicrobial resistant organisms (e.g. methicillin resistant staphylococcus aureus) and reduce overall infection rates.

• CDC is releasing guidelines to improve adherence to hand hygiene in health care settings. In addition to traditional handwashing with soap and water, CDC is recommending the use of alcohol-based handrubs by health care personnel for patient care because they address some of the obstacles that health care professionals face when taking care of patients.

• Handwashing with soap and water remains a sensible strategy for hand hygiene in non-health care settings and is recommended by CDC and other experts.

• When health care personnel's hands are visibly soiled, they should wash with soap and water.

• The use of gloves does not eliminate the need for hand hygiene. Likewise, the use of hand hygiene does not eliminate the need for gloves. Gloves reduce hand contamination by 70 percent to 80 percent, prevent cross-contamination and protect patients and health care personnel from infection. Handrubs should be used before and after each patient just as gloves should be changed before and after each patient.

• When using an alcohol-based handrub, apply product to palm of one hand and rub hands together, covering all surfaces of hands and fingers, until hands are dry. Note that the volume needed to reduce the number of bacteria on hands varies by product.

• Alcohol-based handrubs significantly reduce the number of microorganisms on skin, are fast acting and cause less skin irritation.

• Health care personnel should avoid wearing artificial nails and keep natural nails less than one quarter of an inch long if they care for patients at high risk of acquiring infections (e.g., Patients in intensive care units or in transplant units

• When evaluating hand hygiene products for potential use in health care facilities, administrators or product selection committees should consider the relative efficacy of antiseptic agents against various pathogens and the acceptability of hand hygiene products by personnel. Characteristics of a product that can affect acceptance and therefore usage include its smell, consistency, color and the effect of dryness on hands.

• As part of these recommendations, CDC is asking health care facilities to develop and implement a system for measuring improvements in adherence to these hand hygiene recommendations. Some of the suggested performance indicators include: periodic monitoring of hand hygiene adherence and providing feedback to personnel regarding their performance, monitoring the volume of alcohol-based handrub used/1000 patient days, monitoring adherence to policies dealing with wearing artificial nails and focused
assessment of the adequacy of health care personnel hand hygiene when outbreaks of infection occur.

- Allergic contact dermatitis due to alcohol hand rubs is very uncommon. However, with increasing use of such products by health care personnel, it is likely that true allergic reactions to such products will occasionally be encountered.

- Alcohol-based hand rubs take less time to use than traditional hand washing. In an eight-hour shift, an estimated one hour of an ICU nurse's time will be saved by using an alcohol-based handrub.

- These guidelines should not be construed to legalize product claims that are not allowed by an FDA product approval by FDA's Over-the-Counter Drug Review. The recommendations are not intended to apply to consumer use of the products discussed.

http://www.cdc.gov/od/oc/media/pressrel/fs021025.htm
What is MRSA?

MRSA is methicillin-resistant Staphylococcus aureus, a potentially dangerous type of staph bacteria that is resistant to certain antibiotics and may cause skin and other infections. As with all regular staph infections, recognizing the signs and receiving treatment for MRSA skin infections in the early stages reduces the chances of the infection becoming severe. MRSA is spread by:

> Having direct contact with another person’s infection
> Sharing personal items, such as towels or razors, that have touched infected skin
> Touching surfaces or items, such as used bandages, contaminated with MRSA

What are the signs and symptoms?

Most staph skin infections, including MRSA, appear as a bump or infected area on the skin that may be:

> Red
> Swollen
> Painful
> Warm to the touch
> Full of pus or other drainage
> Accompanied by a fever

What if I suspect an MRSA skin infection?

Cover the area with a bandage and contact your healthcare professional. It is especially important to contact your healthcare professional if signs and symptoms of an MRSA skin infection are accompanied by a fever.

How are MRSA skin infections treated?

Treatment for MRSA skin infections may include having a healthcare professional drain the infection and, in some cases, prescribe an antibiotic. Do not attempt to drain the infection yourself – doing so could worsen or spread it to others. If you are given an antibiotic, be sure to take all of the doses (even if the infection is getting better), unless your healthcare professional tells you to stop taking it.

How can I protect my family from MRSA skin infections?

> Know the signs of MRSA skin infections and get treated early
> Keep cuts and scrapes clean and covered
> Encourage good hygiene such as cleaning hands regularly
> Discourage sharing of personal items such as towels and razors

For more information, please call 1-800-CDC-INFO or visit www.cdc.gov/MRSA.

Developed with support from the CDC Foundation through an educational grant from Pfizer Inc.
What is *Clostridium difficile* (*C. difficile*)?

*C. difficile* is a spore forming bacterium that can be found in stool specimens of many healthy children under the age of one year and some adults. Following antimicrobial treatment toxin-producing strains of *C. difficile* can multiply and may cause illness. *C. difficile* is a common cause of antibiotic-associated diarrhoea.

Risk factors for *C. difficile*

- Exposure to antibiotics; administration of multiple antibiotic courses increases the risk further.
- Gastric acid suppression (Proton pump inhibitors or H2 blockers)
- Gastrointestinal surgery or manipulation of the GI tract, including tube feeding
- Cancer chemotherapy
- Age > 64 years
- Duration of hospitalisation

Specimens and diagnosis

- Collect stool samples from symptomatic patients for *C. difficile* testing as soon as practicable. Request *C. difficile* testing, specifically—some laboratories do not test for it routinely.
- Testing for *C. difficile* or its toxins should be performed only on unformed stool unless ileus due to *C. difficile* is suspected.
- Repeat testing during the same episode of *C. difficile* infection is of limited value and should be discouraged within 4 weeks of a positive test.
- All patients with severe infection should have *C. difficile* culture performed. Isolates of *C. difficile* should then be referred for typing as soon as practicable. Note that currently typing is only performed from cultures.
- Colonic appearances (pseudomembranous colitis) or biopsy findings at endoscopy and/or radiological appearances may be diagnostic and should prompt laboratory testing for *C. difficile*.

Patient—symptoms, complications and treatment

**Clinical Symptoms**

- Watery diarrhoea/green appearance
- Fever
- Loss of appetite
- Nausea
- Abdominal pain/tenderness

**Complications**

- Relapse of diarrhoea
- Pseudomembranous colitis
- Toxic megacolon
- Perforations of the colon
- Sepsis
- Death

**Monitoring and treatment**

- Ask if this could be *C. difficile* diarrhoea
- Quickly identify patient deterioration
- Stop all unnecessary antibiotics
- If diagnosed, treat with metronidazole (oral or IV) or vancomycin (oral only) - refer to Therapeutic Guidelines: Antimicrobials
- Monitor fluid balance: correct dehydration
- Monitor diarrhoea: stool chart
- Monitor signs of escalating infection: rising CRP, renal failure, falling albumin, rising WBC, fever
Antibiotic prescribing

- Comply with Therapeutic Guidelines: Antibiotic consistent with antimicrobial susceptibility results.
- Use minimum durations of treatment and use the minimum number of agents required.
- Avoid use of broad spectrum betalactam agents (including ceftaxone, ceftazidime, ticarcillin/clavulanate, piperacillin/tazobactam and meropenem), fluoroquinolones (including norfloxacin, ciprofloxacin and moxifloxacin) and lincosamides (including clindamycin and lincomycin).
- Restrict prescription of IV antibiotics to indications specified in the Therapeutic Guidelines: Antibiotic.
- Always specify a stop or review date for every antibiotic course.
- Use single dose surgical prophylaxis wherever possible as per Therapeutic Guidelines.

Infection prevention and control - apply the following in addition to standard precautions

**Contact Precautions**

*Clostridium difficile* is spread in faeces, which can cause widespread environmental contamination. A patient with diarrhoea, their equipment (e.g. commodes, rectal thermometer) and near environment are contaminated with *Clostridium difficile* bacteria and spores. These can then be transferred to other patients mainly via the equipment; or hands or clothing of healthcare staff who have touched the patient or a contaminated surface.

- Isolate patients in a single room with ensuite or dedicated commode/bed pan
- Maintain contact precautions for patient care until > 48 hours after last diarrhoeal stool
- Gloves—put on gloves and other personal protective equipment prior to room entry. When removing gloves, take care not to contaminate hands (refer to Hand Hygiene)
- Use gown or apron made of impervious material. The choice will depend on the extent of contamination anticipated.
- If wearing an apron, ensure that arms below the elbow are bare of wrist watch, rings or clothing

**Hand Hygiene**

- As in NSW Health policy, perform hand hygiene in accordance with the 5 Moments of Hand Hygiene
- Use alcohol based hand rub for hand hygiene before putting on and after removal of personal protective equipment used for contact precautions.
- If gloves have not been worn (when contacting the patient and/or their immediate surroundings) or hands are visibly soiled then hands must be washed with soap (or an antimicrobial soap) and running water to facilitate the mechanical removal of spores. Dry hands thoroughly with paper towels.
- Alcohol based hand rubs are not effective at removing *Clostridium difficile* spores.
- Patients and visitors require education about correct hand hygiene practice, particularly performing hand hygiene with soap and water after toileting

**Environmental Hygiene**

- Follow specific advice from your Infection Control Professional
- Disinfect surfaces, including commodes and toilets with a chlorine-based disinfectant (1 in 1000 hypochlorite solution in cold water)
- Clean and disinfect reusable equipment before the next patient. Where possible dedicate such equipment for each patient. Disinfect or discard at patient transfer or when contact precautions cease (refer to Contact Precautions)
- Maintain enhanced levels of environmental hygiene within the endoscopy service and comply with requirements for reprocessing of endoscopes

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Refer to
NSW Health Policies
Hypervirulent strains of *C. difficile*

Some strains of *C. difficile*, including 027, can be what is classed as 'hypervirulent'. These have been identified in Australia.

Other strains causing *C. difficile* infection have been reported overseas including *C. difficile* ribotypes 001, 014, 078 and 106. Strains of *C. difficile* can be hypervirulent. As an example a hypervirulent form of 027 strain has:

- Increased production of toxin A and toxin B. Toxin A is an enterotoxin (causing cytokine-mediated hypersecretion of fluids and a subsequent inflammatory haemorrhagic process); toxin B is a cytotoxin (causing cell death) and an enterotoxin.
- Deletion of portion of a gene that down-regulates production of toxin A and toxin B.
- Production of a third toxin—Binary toxin
- Increased spore production
- More resistant to fluoroquinolones and third generation cephalosporins

Epidemiology of 027 strain of *C. difficile*

**Prevalence**

In North America, increasing rates of the 027 strain were reported in Canada and USA from March 2003. It was subsequently recognised as causing outbreaks in England, the Netherlands, Belgium and France.

The Netherlands reported a significant decrease in the prevalence of 027 strain to 3 percent of all *C. difficile* samples by the first half of 2009. In the UK, 027 strain is the most common strain of *C. difficile* accounting for 36 percent of all isolates in 2008/09; this was a decrease of 19 percent from 2007/08, and the proportion has continued to fall following enhanced surveillance and reporting.

The 027 strain accounted for 54 percent of a collection of *C. difficile* samples in the USA between 2006 and 2009.

**Detection**

The *C. difficile* bacteria can be detected in the stool of infected patients by using laboratory tests that are commonly available in most hospitals. Identifying the 027 strain and its ability to produce toxins is complex and only performed by a limited number of laboratories across Australia.

**Treatment**

The usual treatment for *C. difficile* infection includes, if possible, stopping antibiotics being given for other purposes and/or treatment with the antibiotics - metronidazole or vancomycin.

Depending upon the severity of the *C. difficile* infection, metronidazole is likely to be the appropriate first-line therapy for most cases. Regardless of what therapy is used, patients should be carefully monitored to be sure they are responding to therapy and that there is no deterioration in their condition.
Biohazardous Waste Material:

- Kits, available in each therapy room, contain all materials needed for proper waste removal.
- Rubber gloves should be worn when blood, vomit/other bodily secretions are present.
  - If rubber gloves are not available, improvise with any possible barrier between yourself and blood or potentially infectious materials.
- Disinfect materials and working surfaces with CaviCide solution
- If material is contaminated by blood, clean with a solution of ¾ cup Clorox® Regular-Bleach per gallon of water. Bleach is located in the resource room.
- When decontaminating equipment or other objects, leave disinfectant in place for at least 10 minutes before continuing the cleaning process.
- Any materials used to clean up the biohazardous waste material (mops, sponges, re-usable gloves, buckets, etc) must also be immediately decontaminated.
- Place contaminated materials in an orange biohazardous trash bag.
- The trash cans for biohazardous material are located on the first floor of Lyles-Porter Hall in the Preschool Language Program Room and on the second floor in LYLE 2159.
- Immediately call R.E.M. for waste pick-up at 494-0121.
- If there are any questions, contact Scott Kepner, the Hazardous Materials Manager, in room 3078 Lyles-Porter Hall Hall

If Bloodborne Exposure Occurs:

Immediately:

- Wash area vigorously with soap and clean water.
- Flush splashes to nose, mouth, or skin with clean water.
- Irrigate eyes with clean water, saline, or sterile irrigants.
- Report exposure to Mary Lou Poole (494-3823) or Lata Krishnan (494-6842)

If an Injury Occurs:

- Fill out and return the following forms to the SLHS Business Office:
  - Report of Personal Injury For Students or Visitors
  - Worker’s Compensation Witness Report Form (only if the event was witnessed)
  - First Report of Injury
- Direct questions regarding workman’s compensation or insurance claims to the SLHS Business Office at 494-0351, room 3026 Lyles-Porter Hall Hall
Procedures for Receiving HBV/TB testing

To: SLHS Students Receiving the HBV/TB

From: Mary Lou Poole, Director, Speech-Language Clinic
       Lata Krishnan, Clinical Professor, Audiology

Date: Fall 2014

Re: Procedures for Receiving the Hepatitis B Vaccination and TB Testing

Please take the following steps:

**HBV**
1. Call the student health center (PUSH) to see a Provider to receive your first Hepatitis B inoculation.
2. You will be sent to room 228.
3. After you have received your shot, you will be given a Hepatitis B vaccination card that contains the date of your shot. This is what you will be copying as proof of your inoculations.
4. Before you leave, the nurse should give you a sheet of paper indicating the date of your next shot. Remember:
   - Shot 1 – Today
   - Shot 2 – One month after shot 1
   - Shot 3 – Five months after shot 2
Make sure the nurse has written the correct date on your sheet.

One month after you have completed the inoculation process, you will have to return to PUSH for a titer (blood test). This test determines if the inoculations were effective. If you pass the test, you will not hear anything from the lab. If you fail the test, the lab will contact you. You then need to receive a booster shot and have the titer done a second time. This process will be repeated until you pass the immunity test or the booster shot/titer process is completed a maximum of three times.

Remember to submit proof of the inoculation process after each shot.

**TB**

Please check in at the Front Desk (main floor) and state that you need to have a TB test. You will go to Room 228 for the testing. This is done on Mondays, Tuesdays, and Fridays 8:30-11:30 and 1:00-4:30.
To: SLHS Graduate Students

From: Mary Lou Poole, Director, Speech-Language Clinic
        Lata Krishnan, Clinical Professor, Audiology

Re: Hepatitis B Vaccination

The department tracks the vaccination process for Hepatitis B virus (HBV). You are required to take one of the following steps regarding the HBV vaccination. Please fill in your name, check your option, attach the appropriate paperwork to this form (if necessary), and return this form to Vicki Parker-Black’s mailbox no later than August 29.

NAME: ________________________________________________

DATE: ___________________________________

Check ONE option:

☐ I am currently receiving the HBV vaccine and have submitted my paperwork.
   Check one of the following and continue to submit your paperwork after each of your shots.
   _____ I have received only shot 1.
   _____ I have received only shots 1 and 2.
   _____ I have received shots 1, 2, and 3, but have not yet completed the titer test.

OR

☐ I have received the HBV shots and titer and I have submitted proof of this process.

OR

☐ I will decline HBV vaccination.
   Fill out the attached Declination Form on back and attach it to this form even if you have declined in the past.

If you have any questions regarding this process, please contact Lata Krishnan or Mary Lou Poole.
Declination Form

Purdue University
Bloodborne Pathogens Exposure Control Program
Hepatitis B Vaccine Declination

I understand that due to my occupational exposure to blood or other potentially infected materials I may be at risk of acquiring Hepatitis B Virus (HBV) infection. I have been given information concerning the opportunity to be vaccinated with Hepatitis B vaccine. However, I have decided to decline the Hepatitis B vaccination at the time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series by contacting the Purdue Health Center.

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To: SLHS Graduate Students

From: Mary Lou Poole, Director, Speech-Language Clinic
Lata Krishnan, Clinical Professor, Audiology

Re: TB Testing

The department tracks the testing process for Tuberculosis (TB). Testing for TB is usually only valid for 12 months. You are required to take one of the following steps regarding the TB testing. Please fill in your name, check your option, attach the appropriate paperwork to this form (if necessary), and return this form to Vicki Parker-Black’s mailbox no later than August 29.

NAME: ____________________________________________________________

DATE_________________________

Check ONE option:

☐ I have completed the TB testing within the last 12 months and have submitted proof of this process. Make a copy of your TB test results and attach it to this form.

OR

☐ I will decline TB testing. Fill out the attached Declination Form on back and attach it to this form even if you have declined in the past.

If you have any questions regarding this process, please contact Lata Krishnan or Mary Lou Poole.
Declination Form

Purdue University
Tuberculosis Exposure Control Program
Tuberculosis Testing Declination

I understand that due to my potential occupational exposure to Tuberculosis (TB) infected individuals I may be at risk of acquiring a TB infection. I understand that by declining this TB monitoring, I will not have the benefit of early identification and intervention for TB, a potentially serious infection. If in the future I continue to have occupational exposure to potentially infected individuals with TB and I wish to be evaluated for appropriateness for TB testing by contacting the Purdue Health Center.

(Type or Print)

Student Name:

________________________________________________________

Last name  First name  Middle Initial

________________________________________________________

Signature  Date
Appendix A

PURDUE UNIVERSITY
TUBERCULOSIS EXPOSURE CONTROL PLAN
TRAINING AND INFORMATION CERTIFICATION

The Occupational Safety and Health Administration (OSHA) recommends that all employees with potential occupational exposure to tuberculosis (TB) participate in an initial, then annual training program.

By signing below you acknowledge that you have received training and information concerning OSHA Enforcement Procedures and Scheduling for Occupational Exposure to Tuberculosis. CPL 2.1 06. The training program contained at a minimum the following elements:

A. Basic concepts of M. tuberculosis transmission, pathogenesis, and diagnosis, including information concerning the difference between latent TB infection and active TB disease, the signs and symptoms of TB, and the possibility of re-infection.
B. Potential for occupational exposure, including the prevalence of tuberculosis in the community.
C. Principles and practices of infection control that reduce the risk for transmission of TB. The employee will receive information regarding current policies and procedures specific to the facility.
D. The purpose of the PPD skin testing, and the significance of a positive PPD test.
E. Principles of preventive therapy for latent TB infection including the indications, use, effectiveness, and potential adverse effects of the drugs.
F. Responsibility to seek prompt medical evaluation if a skin test "converts" or if symptoms develop that are suggestive of TB.
G. Principles of drug therapy for active TB.
H. Importance of notifying the facility if diagnosed with active TB so that contact investigation can be initiated.
I. Responsibilities of the University to maintain confidentiality of the TB infected employee. The TB infected employee must receive appropriate therapy and be noninfectious before returning to work.
J. The higher risks associated with TB infection with persons who have HIV.
K. The potential development of cutaneous anergy as immune function declines.
L. Information regarding the efficacy and safety of BCG vaccination and the principles of PPD screening among BCG recipients.
M. The University’s policy on voluntary work reassignment options for immunocompromised employees at risk for exposure to TB.

Your Name ____________________________
Signature ____________________________ Date __________________
Trainer Sign __________________________ Date __________________

Department __________________________ Job Classification __________________________
Building ____________________________ Supervisor’s Name __________________________

Distribution: Personnel file - Environmental Health Office, REM, B173 CIVL, Purdue University
APPENDIX D
PURDUE UNIVERSITY
BLOODBORNE PATHOGENS EXPOSURE CONTROL PROGRAM
TRAINING AND INFORMATION CERTIFICATION

The Occupational Safety and Health Administration (OSHA) requires all employees with occupational exposure to bloodborne pathogens to participate in an annual training program (29 CFR 1910.1030).

By signing below you acknowledge that you have received training and information concerning the OSHA Bloodborne Pathogens Standard and the policies and procedures applicable to your work. This training program contained at a minimum the following elements:

A. An accessible copy of the regulatory text of the OSHA Bloodborne Pathogen Standard (29 CFR 1910.1030) and an explanation of its contents;
B. A general explanation of how widespread bloodborne diseases are among the general population and what the symptoms of bloodborne diseases are;
C. An explanation of the ways bloodborne diseases are transmitted;
D. An explanation of the Purdue University Exposure Control Plan and the means by which you can obtain a copy;
E. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;
F. An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment;
G. Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;
H. An explanation of how personal protective equipment is selected for particular jobs;
I. Information on the hepatitis B vaccine, including information on how well it works, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge;
J. Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;
K. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available;
L. Information on the post-exposure evaluation and follow-up that Purdue University is required to provide for the employee following an exposure incident;
M. An explanation of the signs and labels and/or color coding required by the Exposure Control Plan; and
N. An opportunity for interactive questions and answers with the person conducting the training session

Your Name ___________________________ (PLEASE PRINT CLEARLY)

Signature ___________________________ Date ___________________________

Trainer Sign _________________________ Date _________________________

EMPLOYEES ONLY

Department ___________________________ Job Classification ___________________________

Building ___________________________ Supervisor’s Name ___________________________

Students only: Course No. ___________________________

DISTRIBUTION:
1. Personnel or student file
2. Environmental Health Officer, REM, 6173 CIVL, Purdue University, West Lafayette, IN 47907-1662