This policy has been adopted by UNC Health Care for its use in infection control. It is provided to you as information only.

Infection Control Manual		
UNC HEALTH CARE	Policy Name	**Infection Control and Screening Program: Occupational Health Service**
	Policy Number	**IC 0040**
	Date this Version Effective	**June 2017**
	Responsible for Content	**OHS/Hospital Epidemiology**

I. Description

Describes policies used by UNC Health Care's Occupational Health Service to reduce the risk of infections among Health Care Personnel (HCP).

Table of Contents

II. Rationale

Screening programs (TB, latex, NIOSH approved respirator medical evaluation and vaccine preventable diseases), pre-exposure prophylaxis, and post-exposure prophylaxis are offered through Occupational Health Service (OHS) in an effort to control communicable disease risks to both personnel and patients. However, OHS does not evaluate or treat Health Care Personnel (HCP) for health problems that are not work-related. OHS refers to the entity responsible for providing these persons their general medical care.

III. Policy

A. General Information

1. Occupational Health Services are provided to UNC Health Care personnel through the UNC Health Care Occupational Health Service (OHS). University HCP are seen in the University Employee Occupational Health Service (UE-OHS). UNC students are referred to Campus Health Services. Non-UNC students who are on an official rotation through one of the

Health Science schools will be seen by Campus Health Services as a courtesy to the student.

2. To safeguard the health of personnel and patients and decrease the risk of transmitting preventable diseases it is important for all personnel to be up-to-date on their immunizations; so important, that UNC Health Care has a mandatory immunization program for certain vaccines.
3. UNC Health Care will follow the CDC/HICPAC Guideline for Infection Control in Health Care Personnel as an official policy of OHS with certain exceptions.
4. UNC Health Care will adhere to the APHA (American Public Health Association) Guidelines as per NC State Health regulations.
5. This policy applies to all persons providing service within UNC healthcare facilities (UNC Hospitals, UNC HCP, volunteers, students, Home Health personnel and clinics, including community based practices).
6. Contract HCP must comply with the recommendations in Appendix 2. Home department for contract HCP must maintain all required immunization records and respiratory medical evaluation questionnaires.
7. OHS and Hospital Epidemiology will be responsible for trending HCP infection data for UNC Health Care and maintaining such data in the OHS department.

B. Immunization Program

1. Required Immunization for Personnel
   a. Immunizations (See Appendix 1)
   b. Every effort should be made by new employees to obtain immunization records and TB skin test (TST) results prior to new employee orientation (NEO) as failure to provide immunization records/TST may delay the hiring process. The following immunizations are offered at the employer's expense: Pertussis (Tdap); tetanus (Td); mumps, measles, rubella (MMR); hepatitis B (for HCP with reasonably expected exposure to blood or other contaminated fluids); influenza, and varicella. Meningococcal vaccine will be offered to Microbiology Laboratory personnel with potential exposure to *Neisseria meningitidis* (booster every 5 years). Live-attenuated virus vaccines will not be given to pregnant HCP or immuno-compromised persons. Other vaccines (e.g., smallpox, hepatitis A) may be offered at the discretion of the Medical Director.

      All new personnel working at UNC Health Care, including rehired personnel are required to complete an immunization screen at new employee orientation (NEO). Failure to provide proof of immunizations and to complete the OHS screening will prevent the HCP from working at UNC Health Care until these requirements are met. All HCP must be immune (unless there is a medical contra-indication, as described by CDC/ACIP, or religious objection) to measles, mumps, rubella, varicella and pertussis. All HCP must receive influenza vaccine annually unless there is a medical contra-indication, as described by CDC/ACIP, or religious objection. Influenza vaccine exemptions will be evaluated on an individual basis each year and must be resubmitted annually.

   c. Tuberculosis (Initial and Annual Screening)

      Tuberculosis screening will be conducted as per the Tuberculosis Control Plan. OHS will accept outside testing if performed within 6 months prior to start of employment and reported using the OHS TB Screening form or accepted alternative. All HCP will complete a respirator medical evaluation form (refer to Tuberculosis Control Plan). Fit testing is not required for use of a powered air purifying respirator (PAPR) by HCP but a

respiratory medical evaluation and annual training requirements still apply. HCP and Volunteers with reactive TST will be counseled and offered treatment for latent TB infection at OHS per the Tuberculosis Control Plan.

C. Employment and Annual Health Screening

1. UNC Health Care HCP, volunteers, shadow students and house staff shall have initial infectious disease screening and/or immunization review as deemed necessary by the Medical Director of OHS or the Hospital Infection Control Committee (HICC). The infectious disease screening will include tuberculosis screening as specified in the Tuberculosis Control Plan and an immunization review that includes but is not limited to NC State regulations. The screening will be directed by OHS.
2. Annual screening, if necessary, will be directed by OHS in or near the healthcare provider's birthday month. Such screening will include a review of symptoms for tuberculosis as per the Tuberculosis Control Plan and an immunization review.
3. University personnel (i.e., staff of the Medical, Dental, Pharmacy, Nursing schools) who work within UNC Hospitals' clinical facilities shall receive their required screening through the University Employee Occupational Health Service (UE-OHS).
4. All UNC students who obtain clinical experience at UNC Hospitals shall receive their required screening through the Campus Health Services.
5. Contract HCPs who in their job capacity enter facilities where patient care is provided, whether in a patient care area or in an administration wing, must comply with OSHA Standards and OHS Infection Control Policy. It is the responsibility of the University or Hospital Department hiring these HCP to assure compliance with this policy
6. HCP providing high-level disinfection (HLD) who may be color blind should be referred by their supervisors for further evaluation by Occupational Health Service. Semicritical medical devices (e.g., some endoscopes, some endocavitary devices) undergo cleaning followed by HLD in order to prevent patient-to-patient transmission of pathogens which could lead to serious infections. In order to assess minimum effective concentrations (MEC) of HLD chemicals, healthcare personnel (HCP) must be able to discern colors since currently available chemical indicators demonstrate MEC via a color-changing strip or vial. HCP performing HLD may be "color-blind, however, another HCP would be required to read the strips or vials."

D. Screening of Personnel with Infectious Diseases or Exposure to Contagious Diseases

See Appendix 3 or Occupational Health Services Intranet page for specific protocols.

1. All HCP (UNC Health Care HCP, UNC Hospital's volunteers, shadow students and others with a contract with OHS) with a potentially communicable disease (e.g., shingles, conjunctivitis) **must** notify Occupational Health Service. The Occupational Health Service provides free medical screening for health problems encountered by HCP for the purpose of infection control. If necessary, the Medical Director of Occupational Health Service may order re-assignment or furlough of the HCP with a communicable disease. Administrative leave may be imposed/administered under the direction of the Medical Director of OHS. The director, department head, or supervisor will be informed of the necessity of administrative leave. Work restriction guidelines are as per Healthcare Infection Control Practices Advisory Committee (HICPAC) recommendations. HCP will utilize either sick leave or vacation time (PTO), if restricted from clinical activities or other hospital duties, when ill with a communicable disease that poses a risk to patients or other HCP. Adherence to work restrictions is required of **all** HCP. OHS may elect to implement additional restrictions if they deem such restrictions enhance patient protection.

2. HCP with non-intact skin on exposed surface may not work until the lesions have healed (i.e., resolved).
    a. Non-intact skin is defined as weeping lesions, lacerations that penetrate through the dermis and are less than 48 hours old, lacerations with sutures, and lacerations with steri-strips. Personnel with lesions that represent bacterial infections (e.g., CA-MRSA, streptococcal infection) on exposed surfaces must not work until the lesion(s) resolve.
    b. Exposed surfaces include hands (wrists and hands) and face (above area of collar bone).
    c. Work is defined as direct patient care or contact with equipment that has contact with patients (e.g., blood pressure cuffs, ventilators and food trays.).
3. HCP with skin lesions (unless HCP has a communicable disease such as varicella) that are under clothes and can be covered may provide direct patient care. Lesions should be covered with a sterile dressing and must be entirely covered by clothing.
4. HCP with visible lesions due to Herpes Simplex (See Appendix 7) may not work in the following units:
    a. Neonatal ICU
    b. Pediatric ICU
    c. Bone Marrow Transplant Units (North and South),
    d. Labor and Delivery
    e. Newborn Nursery.

    HCP may provide care in all other units if facial lesions can be covered (i.e., with mask) while providing patient care. HSV is typically on the border of the lips and skin and is a small vesicular fluid-filled blister.
5. Blood Exposure

    The Exposure Control Plan for Bloodborne Pathogens and OHS protocol for blood exposures will be followed. Complete information can be accessed at the Infection Control website (Exposure Control Plan for Bloodborne Pathogens) and OHS website.
6. Management of the HIV, HBV, or HCV Infection Healthcare Provider (see Appendix 6)

    HCP not involved in invasive procedures (as defined by the CDC/SHEA guidelines) who are infected with HIV, HBV or HCV shall not be restricted in providing patient care provided they do not have another infection that places patients at risk (e.g., active pulmonary TB). HCP who perform invasive procedures and who are infected with HIV, hepatitis b, or hepatitis c must be reported to the NC Department of Health and Human Services (Communicable Disease Branch) and be cleared by an Expert Panel prior to performing such procedures. The CDC Guideline of Management of the HBV infected HCP and the SHEA Guideline on the Management of the HIV, HBV, HCV infected HCP shall be the basis for UNC Health Care policy.

    Personnel who are known carriers of hepatitis B (especially if “e” antigen positive) should be counseled about precautions to minimize their risk of infecting others. Personnel who have no exudative lesions on the hands, who are acutely infected with hepatitis B are known to be carriers of HBsAg, or who have hepatitis C, shall wear gloves for patient procedures that involve trauma to the tissues or direct contact with mucous membranes. Personnel with exudative lesions on hands who are HBeAg positive shall abstain from all direct patient care. The OHS Medical Director will review such personnel on a case-by-case basis and may require work restriction.

7. Management of Health Care Personnel (HCP) with an Upper Respiratory Tract Infection (URI)

   a. HCP who develop respiratory symptoms <u>with fever</u> (>100.4°F or >38°C):

   - HCP should be instructed not to report to work, or if at work, to promptly notify their supervisor and leave work.
   - HCP are excluded from work until at least 24 hours after they no longer have a fever (without the use of anti-pyretic [fever-reducing medicines] such as acetaminophen, motrin or aspirin).
   - Upon returning to work, HCP should report to their supervisor. If symptoms such as cough and sneezing are still present upon return, HCP should wear a properly fitted surgical mask (nose and mouth covered) in patient care areas and adhere to respiratory etiquette with frequent hand hygiene. If the HCP is unable to adequately contain their secretions with a properly fitted surgical mask they will be excluded from work until resolution of symptoms and/or ability to contain secretions.

   b. HCP who develop respiratory symptoms <u>without fever</u>:

   - If symptoms such as cough and sneezing are present, HCP should wear a properly fitted surgical mask (nose and mouth covered) in patient care areas and adhere to respiratory etiquette with frequent hand hygiene. If the HCP is unable to adequately contain their secretions with a properly fitted surgical mask they will be excluded from work until resolution of symptoms and/or ability to contain secretions.

   c. General Statements:

   - The preceding guidance on URI symptoms and work restrictions will be followed regardless of lab testing (e.g. influenza testing).
   - During an outbreak, occupational health in consultation with infection control may impose additional work restrictions (e.g., reassignments), exclusions or laboratory evaluation.

8. Management of Employees who Handle Food

   HCP who handle food must report to the manager when they are sick with an illness that is transmitted through food. HCP who report to their work site with any of the following symptoms or who have been diagnosed with any illnesses listed below shall be excluded from the work site.

   a. HCP who handle food must inform manager if they experience the following symptoms:

      i. Vomiting
      ii. Diarrhea
      iii. Jaundice
      iv. Sore throat with fever (100.4°F)

   b. HCP who handle food must inform their manager if they are diagnosed with the any of the following:

      i. Norovirus
      ii. Hepatitis A
      iii. Shigella
      iv. Shiga toxin-producing *E.coli*

v. Salmonella typhi

E. Post-Exposure Prophylaxis for Vaccine Preventable Diseases

(See Appendix 3)

Post-exposure prophylaxis or follow-up for certain infectious diseases will be available in OHS. Such diseases are:

Hepatitis A
Hepatitis B
Influenza A (as deemed necessary by the Medical Director of OHS)
Influenza B (as deemed necessary by the Medical Director of OHS)
Measles
Meningococcus
Pertussis
Varicella
Animal bite
Ectoparasites
Human bites
Monkey bite
HIV
Tuberculosis

F. Hand Dermatitis/Latex Allergy

HCP with hand dermatitis or latex allergy should be screened by OHS as per OHS protocol.

G. Implementation

Implementation of this policy will be the responsibility of the Medical Director of the Occupational Health Service. The Department of Environment, Health and Safety (EHS) is responsible for implementation of the health and safety policies of the University with medical services provided by the UEOHC.

IV. References

1. Votra EM, Rutala WA, Sarubbi FA. Recommendations for pregnant HCP interaction with patients having communicable infectious diseases. Am J Infect Control 1983;11:10.

2. Bolyard EA. Guideline for infection control in health care personnel. AmJ Infect Control 1998, 26:289.

3. Klein JO. Management of infections in hospital HCP. Am J Med 1981;70:919.

4. Wenzel RP, Townsend TR. When can the infected hospital HCP return to work. In Current Clinical Topics in Infectious Disease. Ed. Remington and Swartz. Vol. 4, p. 75, 1983.

5. Patterson WB et al. Occupational hazards to hospital personnel. Ann Int Med 1985;102:658.

6. Centers for Disease Control. Diphtheria, tetanus, and pertussis: Recommendations for vaccine use and other preventative measure: Recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR 1991;40 (No. RR-10).

7. Federal Register. Department of Labor, Occupational Exposure to Bloodborne Pathogens, Final Rule, 29 CFR 1910:1030.

8. American Academy of Pediatrics. Red Book, *2006*.

9. Centers for Disease Control and Prevention. Guidelines for preventing the transmission of tuberculosis in health-care facilities, MMWR 1994; 43(RR13); 1-132.

10. Centers for Disease and Prevention. Recommended Adult Immunization Schedule, United States 2010: Recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR 2012;61:No.4.

11. Centers for Disease Control and Prevention. General Recommendations on Immunization. MMWR Recommendations and Reports 2011;60(RR-2:1-60.

12. Centers for Disease Control and Prevention. Immunization of Health-Care Personnel. MMWR Recommendations and Reports 2011;60(RR-7):1-45.

13. Centers for Disease Control and Prevention /ACIP General Recommendations on Immunizations MMWR 2011;60 #2, Table 6 and Table 7: http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf

14. Centers for Disease Control and Prevention: Prevention Strategies for Seasonal Influenza in Healthcare Settings: http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm, accessed 9-3-2015.

15. Healthcare Infection Control Practices Advisory Committee (HICPAC) http://www.cdc.gov/hicpac/pubs.html

16. CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management. December 20, 2013 / 62(RR10);1-19. http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6210a1.htm

17. Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis – Published 9/25/2013. Kuhar et al. http://intranet.unchealthcare.org/intranet/hospitaldepartments/ohs/OHS%20PROTOCOLS/HIV%20Post%20Exposure%20Protocol

V. Reviewed/Approved by

Hospital Infection Control Committee

VI. Original Policy Date and Revisions

Revised on Dec 2005, Sept 2007, Mar 2010, June 2012, Feb 2013, Nov 2013, Feb 2016, June 2017_{rev}.

Appendix 1: Proof of Immunity for HCP

Vaccine	Birth Before 1957	Physician Diagnosis	Positive Serology	Self Report	Documented Vaccine
Mumps	√[1]	Yes[2]	√[3]	No	√[4]
Measles	√[1]	Yes[2]	√[3]	No	√[4]
Rubella	√[1]	No	√[3]	No	√[5]
Varicella	No	Yes	√[3]	√[11]	√[4]
Hepatitis B	No	NA	≥10 MIU/mL[6]	No	√[7,8]
Pertussis	No	No	No	No	√
Influenza	No	No	No	No	√[10]

NA = not applicable

[1] Will be considered immune; however, in an outbreak setting proof of immunity or immunization may be required.

[2] Laboratory confirmation of infection required

[3] Indeterminate test is considered negative

[4] 2 doses of live-attenuated vaccine >1 month apart

[5] 1 dose of live-attenuated vaccine

[6] A positive serology at any time in past is considered evidence of immunity. Test should be obtained 1-2 months after last HBV vaccine dose (1-6 month acceptable).

[7] 3 doses of vaccine (0, 1, 6 months). After last dose, test for anti-HBsAg; if <10 MIU/mL provide an additional 3 doses of HBV vaccine. After 6th dose, re-test for anti-HBsAg; if <10 MIU/mL test for HBsAg. If HBsAg negative, consider HCP a non-responder.

[8] HCP may decline vaccine but MUST sign the declination form. HCP who sign the form may elect to receive vaccine in the future.

[9] Only 1 dose provided. May provide regardless of age or time since receipt of last Td

[10] Provided annually

[11] Must be personal history of chickenpox

HCP will NOT receive any vaccine for which they have a medical contra-indication or precaution as listed by the CDC/ACIP MMWR 2011;60(# 2), Table 6, or by the vaccine manufacturer.

Appendix 2: Summary of UNCH Immunization and Health Requirements for Contract HCP in Clinical Facilities

Contract HCP who provide clinical services in UNC Health Care facilities will comply with OHS policy. Contract HCP who do not provide clinical services must comply only with OSHA Tuberculosis and Bloodborne Pathogen Rules. All contract HCP with signs or symptoms of an infectious disease or exposure to communicable diseases should see their occupational health physician or local physician before providing services.

The term health care personnel refers to all paid and unpaid persons working in health care settings who have the potential for exposure to infectious materials, including body substances, contaminated medical supplies and equipment, contaminated environmental surfaces, or contaminated air. These personnel may include but are not limited to emergency medical service personnel, dental personnel, laboratory personnel, autopsy personnel, nurses, nursing assistants, physicians, technicians, therapists, pharmacists, students and trainees, contractual staff not employed by the health care facility, and persons not directly involved in patient care but potentially exposed to infectious agents (e.g., clerical, dietary, housekeeping, maintenance, and volunteer personnel). (CDC, Guideline for infection control in health care personnel, 1998).

For immunization requirements, see Appendix 1.

Tuberculosis

- Annual training for all persons regarding the prevention of tuberculosis as mandated by the Occupation Safety and Health Administration (OSHA) (Federal Register 1994;59:54242-54303).
- Initial and annual tuberculin skin test and evaluation as recommended by the Centers for Disease Control and Prevention (CDC) and mandated by OSHA. Tuberculin testing should be done by the Mantoux method using a 5-TU TST (record date placed, date read, signature of MD or RN who administered and interpreted the TST, and induration in mm).
- Evaluation of all personnel exposed to tuberculosis as recommended by the CDC and mandated by OSHA.

Bloodborne Pathogens

- Annual training for all persons with reasonably anticipated exposure to blood or body fluids regarding the prevention of bloodborne pathogens as mandated by OSHA (Federal Register) 1991;56:64175-64182) and UNC Health Care Exposure Control Plan for Bloodborne Pathogens.
- Each person with reasonably anticipated exposure to blood or body fluids must be offered hepatitis B immunization as recommended by the CDC and mandated by OSHA. Persons refusing immunization must sign an informed refusal form as mandated by OSHA. Immunity should be assured for persons taking the vaccine by obtaining a quantitative anti-HBsAg titer 1-2 months after the 3rd dose of hepatitis B vaccine. Persons with an inadequate titer (i.e., <10 mIU/mL) should be offered 3 additional doses of hepatitis B vaccine and be retested for immunity using a quantitative test.
- Evaluation (including provision of post-exposure prophylaxis within a few hours) of all personnel exposed to blood or contaminated body fluids as recommended by the CDC and mandated by OSHA.

Appendix 3: Post-Exposure Prophylaxis for Vaccine Preventable Diseases

Disease	Definition of Exposure	Prophylaxis[1]	Comments
Hepatitis A	Ingestion of contaminated food; contact with feces from a hepatitis A infected patient	One dose IM of immune globulin 0.02 mL/kg given within 14 days of exposure in large muscle mass (gluteal or deltoid)	Avoid in persons with IgA deficiency; do not administer within 2 weeks of MMR vaccine or 3 weeks of varicella vaccine unless benefits exceed risk (e.g., known exposure)
Hepatitis B	Contact with contaminated blood or body fluid via percutaneous, mucous membrane or non-intact skin exposure		HCP who have ever demonstrated an anti-HBsAg titer $\geq$10 mIU/mL do not require postexposure prophylaxis
Influenza A	Cohabiting confined air space or face-to-face contact in an open area[2]	Oseltamivir 75 mg po each day for 7-14 days.	
Measles	Cohabiting confined air space or face-to-face contact in an open area[2]	Susceptible personnel should receive immune globulin 0.25 mL/kg (maximum 15 mL) IM within 6 days of exposure OR measles vaccine	Susceptible persons should be furloughed from days 5-21 post-exposure or for 7 days after the rash appears
Meningococcus	Direct contact with respiratory secretions from infected person (e.g., resuscitating, intubating or closely examining the oropharynx of an infected patient)[2]	Ciprofloxacin 500 mg PO x 1 or ceftriaxone 250 mg IM x 1 or rifampin 600 mg PO 2x per day for 2 days	Home contacts of exposed healthcare providers do not need to receive prophylaxis unless the HCP develops infection; rifampin and ciprofloxacin are not recommended in pregnancy
Pertussis	Direct contact with respiratory secretions or droplets from the respiratory tract of infected persons[2] or sharing confined air space for >1 hour.	Exposed HCP should receive Erythromycin (500 mg Q.I.D.x 14 days), azithromycin (Z-pack, 5 days)[3;] trimethoprim-sulfamethoxazole 1 PO 2x per day is an alternative in an erythromycin intolerant person	Symptomatic persons should be evaluated for infection with a nasopharyngeal culture plated on appropriate media and relieved from work
Varicella	Cohabiting confined air space or face-to-face contact in an open area[2] with a patient with active lesions or within 48 hours prior to the development of lesions	For susceptible HCP varicella-immune globulin, 125 U/10 kg IM, maximum dose 625 U, is indicated for immuno-compromised or pregnant adult	Susceptible HCP should be furloughed from days 8-21 post-exposure. HCP who receive VZIG should be furloughed from days 8-28 post-exposure.

[1] The latest CDC guidelines should always be consulted.
[2] HCP who were wearing a mask (surgical mask or N-95 respirator) are not considered exposed.
[3] Not FDA approved indication

Postexposure Prophylaxis for Other Diseases

Disease	Definition of Exposure	Prophylaxis[1]	Comments
Animal bite	Bite that penetrates the skin	Amoxacillin-clavulate PO Tid x 5 days, dT vaccine (if indicated)	Ortho consult if joint entered; ED transfer if sutures required; follow bloodborne pathogen protocols
Ectoparasites	Prophylaxis not provided for exposure		
Human bite	Bite that penetrates the skin. See bite protocol.	See bite protocol.	Ortho consult if joint entered; ED transfer if sutures required; follow bloodborne pathogen protocols
Monkey bite	Bite that penetrates the skin	Call Medical Direct	Medical Emergency
Tuberculosis	See TB protocol	See TB protocol	See TB protocol

Tetanus Wound Management

	Clean, minor wounds		All other wounds	
Vaccination history	Td	TIG	Td	TIG
Unknown or <3 doses	Yes	No	Yes	Yes
3+ doses	No*	No	No**	No

* Yes, if >10 years since last dose, provide Tdap (unless has had 1 dose in past)

** Yes, if >5 years since last dose, provide Tdap (unless has had 1 dose in past)

Appendix 4: Management of Unprotected Direct B. Pertussis Exposure

Exposure is defined as direct contact with respiratory secretions or droplets from the respiratory tract of infected persons or sharing confined airspace for >1 hour.

Exposed HCP will be instructed to go to Occupational Health. Exposed and symptomatic HCP will be screened with nasopharyngeal swab (PCR) for *B. Pertussis*.

Prophylactic treatment will be started after culturing unless the HCP is immune by virtue of having had a native infection.

	Respiratory Symptoms	PCR[a]	Prophylaxis or Treatment[b]	Isolation Guidelines[c]
HCP	-	-	14 days	None
	+	-	14 days	Exclusion from work until asymptomatic or another diagnosis is made which rules out pertussis or on medication for 7 days.
	+ or -	+	14 days	Exclusion until end of therapy (14 days).
Patient	-	-	14 days	Droplet precautions until culture results available.
	+	-	14 days	Droplet Precautions
	+ or -	+	14 days	Droplet Precautions until end of therapy.
Relative of index case	+ or -			Exposed family members will be excluded from the UNC Hospitals if symptomatic. Relatives of children with proven or suspected pertussis should confine their visits to the patient's room and refrain from visiting other areas of the hospital (i.e., other patient's rooms, play room).

[a] PCR should be performed on specimens obtained by nasopharyngeal swab.

[b] Treatment or prophylaxis - Adult: 500 mg erythromycin estolate Qid x 14 days or 500 mg azithromycin x 1, then 250 mg Q d x 5; Child: 30-50 mg/kg/day of erythromycin estolate divided Qid x 14 days. If patient is not tolerating erythromycin, substitute Bactrim BS Bid (for adults) to finish 14-day course.

[c] Physician in charge please notify Hospital Epidemiology when Pertussis is known or suspected.

Appendix 5: Nursing Management Protocol

I. Pre-Exposure Vaccines

A. Diphtheria-tetanus toxoid
   1. Indications
      a. No primary series
      b. Routine booster administration: young adult, age 50 or every 10 years
      c. Post-exposure (injury)
   2. Contra-indications
      a. Bleeding diathesis
      b. Anaphylaxis to previous administration
      c. Active infection (febrile)
   3. Administration
      a. IM 0.5 mL deltoid

B. Tetanus Diphtheria and acellular Pertussis (Tdap)
   1. Indications
      a. Must have had primary series
      b. Indicated for active booster immunization as a single dose in persons 11 through 64 years of age
      c. Post-exposure (injury)
   2. Contra-indication
      a. Encephalopathy within 7 days of a previous dose of a pertussis containing vaccine not attributable to another identifiable source.
      b. Progressive neurological disorder, uncontrolled epilepsy, or progressive encephalopathy
      c. Active infection (febrile)
      d. Severe latex allergy
   3. Administration
      a. IM 0.5mL deltoid

C. Hepatitis B (see hepatitis B policy)

D. Measles-mumps-rubella
   1. Indications
      a. No primary series
      b. Failure to demonstrate immunity
      c. Post-exposure (measles)
   2. Demonstration of immunity
      a. Physician diagnosed disease
      b. Positive serology (indeterminate means negative)
      c. Born prior to 1957 (for mumps and measles)
      d. Born prior to 1957 if not childbearing age or >2 years without menses or history of hysterectomy or bilateral oophorectomy
   3. Contra-indications
      a. Anaphylaxis to previous administration
      b. Immunosuppression (cancer, HIV)(prednisone ≥20 mg for ≥2 weeks; avoid immunization for ≥1 month)

c. Pregnancy (or plans to become pregnant)
d. Allergy to eggs or egg products
e. Allergy to neomycin (or other aminoglycosides)
f. Active infection (febrile)

4. Administration
   a. SC 0.5 mL deltoid

E. Influenza (Live Intranasal Attenuated Vaccine or Inactivated Influenza Vaccine)
1. Indications
   a. Annual for all HCP
   b. Pregnant women
   c. Immunocompromised
   d. Host defense abnormalities
2. Contra-indications
   a. Allergy to eggs or egg products
   b. Anaphylaxis to previous administration
   c. Sensitivity to thimerosal (only used in multidose vials)
   d. Active infection (febrile)
   e. History Guillain-Barre syndrome
3. Administration
   a. IM 0.5 mL deltoid
   b. 0.5ml Intranasal
   c. Intradermal 0.5ml deltoid

F. Varicella
1. Indications
   a. persons age 13yrs. and older should receive 2 doses 4-8 weeks apart
2. Contra-indications
   a. Previous anaphylactic reaction to this vaccine or any of its components
   b. Pregnancy or possible pregnancy within 4 weeks
   c. Active infection (febrile)
   d. For immunocompromised patients see ACIP recommendations
3. Administration
   a. SC 0.5 ml deltoid

Medications, Vaccines, and Laboratory Tests That May Be Ordered Per This Protocol

Vaccines/ Medications Which May Be Ordered Under This Protocol

Vaccines

- Diphtheria-tetanus toxoid
- Tetanus,Diphtheria and acellular Pertussis (Tdap)
- Influenza (TIV, LAIV and Fluzone Intradermal)
- Varicella
- Hepatitis B
- Meningococcal Vaccine (MCV4-Menactra or MPSV4-Menomune)

Medications

- Acetominophen 650mg every 4 hours prn orally for pain or discomfort related to immunization
- Ibuprofen 200 mg,1-2 tabs every 4-6 hours prn orally for pain or discomfort related to immunization
- Benadryl 50 mg by mouth x1 for possible allergic reaction to immunization

Laboratory Tests Which May Be Ordered Under This Protocol

- Measles serology (IgM, IgG)
- Mumps serology (IgM, IgG)
- Rubella serology (IgM, IgG)
- Varicella serology
- Anti-HBsAg (quantitative)
- HBsAg
- Bordetella PCR
- Viral Respiratory Panel
- Influenza PCR
- RSV PCR

II. Post-Exposure Prophylaxis

A. Pertussis (see Appendix 4)

B. Meningococcus

1. Definition of exposure
   a) Intimate close contact/contact with saliva (i.e., complete exam, intubation)
   b) Includes exposure to patients with invasive disease (e.g., sepsis, meningitis) or pneumonia
   c) We do not prophylaxis exposures to patients with meningitis of unknown etiology
2. Therapy
   a) Ciprofloxacin 500 mg PO x 1
      (1) Contra-indications
         (a) Allergy to quinolones
         (b) History of cardiac arrhythmias with QTc prolongation

(c) Check with medical director if patient on procainamide, amiodarone, didanosine, sucralfate and theophylline
(d) Pregnancy

b) Alternative: Ceftriaxone 250 mg IM x 1
c) Alternative: Rifampin 600 mg PO Bid x 2 days

C. Tuberculosis (see TB policy)
D. HIV (see HIV/Bloodborne policy)
E. Human bites (see HIV/Bloodborne policy, OHS Human Bite protocol)
F. Syphilis (see OHS Syphilis protocol)
1. Definition of exposure
a) Contact of skin with potentially infective rash
2. Therapy
a) Benzathine penicillin G 2.4 MU IM x 1
(1) Anaphylaxis to penicillin or cephalosporin
(2) Bleeding diathesis
b) Alternative: Baseline and follow-up (12 weeks and 24 weeks) VDRL with treatment only for conversion
c) Alternative: Doxycycline 100 mg PO Bid x 14 days

Medication Which May Be Ordered Under This Protocol for PEP

Antimicrobials
- Ciprofloxacin 500 mg PO
- Rifampin 600 mg PO Bid
- Ceftriaxone 250 mg IM x 1
- Benzathine penicillin G 2.4 MU IM x 1
- Doxycycline 100 mg PO Bid x 14 days

Laboratory Tests Which May Be Ordered Under This Protocol

RPR or VDRL (for syphilis)
FTA (for syphilis)

Information That Should Be Obtained When Providing Vaccines to Health Care Workers

HCP name
HCP identification number
Date of birth or age
Date of immunization
Vaccine provided
Name of vaccine manufacturer
Lot number of vaccine
Route of immunization
Date for additional immunizations, if required
Complications (if any)
Name and title of person providing vaccine
Signed informed consent
CDC VIS and date

Appendix 6: Management of the HIV, HBV or HCV Infection Health Care Provider

HCP not involved in invasive procedures (as defined by the CDC/SHEA guidelines) infected with HIV, HBV or HCV shall not be restricted in providing patient care provided they do not have another infection that places patients at risk (e.g., active pulmonary TB). HCP who perform invasive procedures and who are infected with HIV, hepatitis b or hepatitis c must be reported to the NC Department of Health and Human Services (Communicable Disease Branch) and be cleared by an Expert Panel prior to performing such procedures. The CDC Guideline of Management of the HBV infected HCP and the SHEA Guideline on the Management of the HIV, HBV, HCV infected HCP shall be the basis for UNC Health Care policy.

Management of HCV exposures (only if source anti-HCV positive)

- Baseline: anti-HCV plus ALT
- 4-6 weeks: HCV RNA plus anti-HCV plus ALT
- 4-6 months: anti-HCV plus ALT

Validation of a positive anti-HCV (RIBA is no longer available for confirmatory testing)

- All persons with a positive anti-HCV should undergo a HCV-PCR
- If the HCV-PCR is positive, the person should be referred to an expert of further diagnostic testing and evaluation for treatment
- If the HCV-PCR is negative, the person should have a follow-up anti-HCV (using a different HCV antibody test) or follow-up HCV-PCR in $\geq$1 month.

Appendix 7: Management of Patient Care Providers with Known Herpes Simplex Virus Infection

Hospital personnel with known herpes simplex virus infection should observe the following:

1. Patient care providers with active oral herpetic lesions must be evaluated by the appropriate Occupational Health Service or Campus Health Service to determine their degree of infectivity and potential risk to patients, especially if the provider cares for high-risk patients (e.g., newborns or immunocompromised patients). If a choice must be made between inadequate patient care coverage and using knowledgeable, trained personnel with covered lesions, the latter alternative is preferred. All active lesions must be completely covered with a facemask or an occlusive dressing. Careful hand hygiene before and after patient contact must be followed. Care must be taken not to touch the lesions or to allow the lesions to touch patients. Immediate treatment with an antiviral agent is recommended since it can reduce viral shedding, local symptoms, and time of healing.
2. Personnel with active herpes simplex infections of the fingers or hands (herpetic whitlow) should be excluded from contact with patients and contact with the patient's environment until their lesions are healed. Personnel with herpetic whitlow should contact their OHS for follow-up and treatment.
3. Treatment with an antiviral agent will be considered since it can reduce viral shedding, local symptoms and time of healing.

Cardiopulmonary Resuscitation Classes

Personnel with active oral herpes simplex infections must not participate in cardiopulmonary resuscitation classes or similar activities that would allow viral transmission.

References

U.S. Department of Health and Human Services, Public Health Service, Center for Disease Control. Recommendations for Prevention of Infections in Health Care Personnel. AJIC June 1998.