I. PURPOSE- Herpes B virus is carried by monkeys in the genus *Macaca*, such as the rhesus (*Macaca mulatta*), cynomolgus (*M. fascicularis*), pigtail macaque (*M. nemestrina*) and other Asiatic macaque species. The virus can be transmitted from these monkeys to humans through exposure to the animal’s saliva or other body fluids or tissues. Most infections have been contracted through skin injuries such as bites, scratches, needle sticks or lacerations or through splashes of body substances in to mucous membranes like the conjunctiva of the eye. The stability of the virus on cage surfaces is not known but such contaminated surfaces must be considered as possible sources of infection.

A. Infected monkeys generally show no signs of illness or may have oral ulcers similar to "cold sores". It is nearly impossible to determine whether a particular monkey is carrying or shedding B virus. Therefore, all macaque monkeys should be treated as though infected and their bodily fluids and soiled cages should be handled as if they were contaminated.

II. RESPONSIBILITY

A. ULAM is responsible for monkey sample collection and submission, and then forwarding the results to UM Occupational Health Services / Emergency Room.

B. UM Occupational Health Services is responsible for human sample collection and submission. In addition, UM Occupational Health Services is also responsible for coordination of post-exposure procedures with the Emergency Room.

III. PROCEDURES:

A. Preventive measures
   1. University of Michigan personnel who come in contact with macaque monkeys, their bodily fluids, or their soiled cages must wear designated personal protective equipment (PPE). Please refer to OSEH PPE charts.

B. Criteria for determining whether an individual is at risk of infection
   1. The individual has sustained a bite or scratch wound, laceration, needlestick or eye splash.
   2. The wound was caused by a monkey or by soiled equipment.
   3. The non-human primate involved is a monkey in the genus *Macaca*, such as the rhesus (*Macaca mulatta*), cynomolgus (*M. fascicularis*), pigtail macaque (*M. nemestrina*) or other Asiatic macaque species.
4. The wound is actually or potentially contaminated with saliva or other body fluids or tissues from a macaque monkey.

C. Procedures to be followed by an individual sustaining a potentially contaminated injury.

1. Injuries during regular working hours are handled by UM Occupational Health Services. For after hours, weekend, and holiday exposures proceed to the Emergency Room after initial first aid. The Emergency Room phone number is (734) 936-6666.

2. Follow these first aid procedures for bite, scratches, and needlesticks using the Monkey Bite/Scratch First Aid Kit BEFORE proceeding to UM Occupational Health Services.

   a. Put on exam gloves before scrubbing wound. If the injury involves a single hand, glove the other hand before proceeding. If the injury does not involve a hand, glove both hands before proceeding. Place non-sterile gauze sponges in the stainless steel bowl. Moisten the sponges with saline first, then pour Hibiclens onto sponges to saturate them.

   b. With a gloved hand, scrub the wound vigorously with Hibiclens-soaked sponges for 3-5 minutes. Discard gauze and pour saline on the wound to rinse area. Repeat scrubs and rinses two more times for a total of 15 minutes of scrubbing. Cover wound with sterile gauze.

   c. Call UM Occupational Health Services at 734-764-8021 and notify them of your injury and your expected visit.

   d. If possible complete primate portion of Georgia State University B Virus Submission form. This form is included in the Monkey Bite Scratch Kit and is required by UM Occupational Health Services for human sample submission. Include primate’s name, clinical number, date of injury, and type of injury or exposure (needlestick etc). This form is included at the end of this SOP.

   e. Proceed directly to UM Occupational Health Services bringing the B Virus Submission form. UM Occupational Health Services is located C380 Med Inn Building.

   f. NOTE: First aid procedures similar to those described above are recommended even if the monkey is not a macaque. The employee should contact his/her supervisor and proceed to UM Occupational Health Services, however viral cultures and serum samples will not be collected from the patient or the monkey.

3. Follow these first aid procedures for eye splashes using the Monkey Bite/Scratch First Aid Kit BEFORE proceeding to UM Occupational Health Services.

   a. Rinse eyes immediately with water at an eye wash station or sink for 15 minutes. If water is not available, use Dacriose irrigating solution. DO NOT USE HIBICLSENS IN THE EYES.
4. Other procedures
   a Inform your supervisor of the injury. Contact or have your supervisor contact the ULAM area veterinary technician (764-0277) to report the injury and record it in the Monkey Bite/Scratch Log.
   b All work related illnesses and injuries must be reported to Work Connections, by the supervisor within 24 hours by faxing the completed Illness and Injury Report Form to (734) 936-1913. This form is available at www.umich.edu/~connect in the Forms section.

D. Post exposure procedures for monitoring exposed personnel
   1. Patients are referred to UM Occupational Health Services for follow-up examinations and collection of additional blood samples.

E. Post exposure procedures for monitoring animals
   1. Reporting the injury- The person injured or his/her supervisor should contact the ULAM area veterinary technician to report the injury. The veterinary technician will obtain and record the following information in an electronic version of the Bite/Scratch Log which is kept on the ULAM general-veterinary drive → Primates → NHP bite/scratch log:
      a the name of the person injured
      b the name of the principal investigator
      c the identification number of the monkey
      d the room in which the monkey was housed
      e date that the injury was sustained
      f the location of the wound
2. **Physical examination of monkey** - The area veterinary resident should perform a physical examination of the monkey.
   
a. The physical examination should be performed preferably on the same day that the injury occurred but no longer than 24 hours after the injury. The monkey's mouth should be examined closely for the presence of ulcers, crusts, scabs, exudate and the eyes examined for conjunctivitis. The findings should be recorded on an Animal Treatment Report (ATR). The current medical history of the monkey also should be examined. If there are clinical signs of infection in the monkey, the examining veterinarian should communicate this information by telephone to UM Occupational Health Services.

3. **Blood samples and viral cultures from the monkey** - After the examination has been completed, blood and viral cultures should be obtained from the monkey and submitted to the ULAM Animal Diagnostic Laboratory (ADL). The ADL can supply the necessary culturettes (kept in refrigerator in ADL).
   
a. **Blood samples for serology:**
      
i. Collect two 3 ml samples of blood in red-topped tubes. Do not use anticoagulants.
   
ii. Label the tubes with the date, identification number of the monkey, and laboratory accession number.

iii. The Animal Diagnostic Laboratory will separate the serum before shipping (if ADL staff is not available serum should be separated and stored in -80 Freezer in ADL for shipping on next business day).

b. **Viral Cultures:** Collect 4 swabs for culture of Herpes B virus
   
i. one from the mouth
ii. one from the conjunctiva of each eye
iii. one from the genitalia.

iv. Use sterile cotton or dacron swabs with wooden or plastic applicator sticks. Place each swab in a separate tube of Viraport transport medium and break the shaft of the swab, leaving the swab in the medium. Label each tube with the monkey identification number, laboratory accession number, date, and site from which the culture was taken (If ADL staff is not available store swabs in -80 freezer in ADL for shipping on next business day).

c. Inform ADL personnel that the samples are from a potential Herpes B positive animal so that laboratory personnel can take appropriate precautions. The ADL will recharge the employing unit for initial and followup serology and virus culture. Please provide a shortcode if the employing unit is not ULAM

4. **Submit samples to the National B Virus Resource Laboratory**
a National B Virus Resource Laboratory sample submission form
   i The form used by the Animal Diagnostic Laboratory for monkey sample submission is also required by UM Occupational Health Services for human sample submission. This form contains information on both the monkey and the human involved in the exposure. For these reasons, two copies of this form are completed for a baseline exposure submission.
   ii The first copy is completed by the exposed individual and delivered to UM Occupational Health Services immediately after the exposure. The second copy is completed by the veterinary resident upon sample collection for ADL sample submission. An exposure follow-up submission only requires one form to be completed by the resident (an additional form for UM Occupational Health Services are not necessary)) Sections to be competed include the entire “Primate Sample Information” section and primate related questions under “Human Sample Information”.
   iii This form is available in the ADL, at the end of this SOP, and on the National B Virus Resource Center website at [http://www.gsu.edu/bvirus](http://www.gsu.edu/bvirus)

b One of the two serum samples and all 4 swabs from the monkey should be submitted to the National B Virus Resource Laboratory for Herpes B serology and culture, respectively. Follow the B Virus submission protocol in the Animal Diagnostic Laboratory for sample preparation and transport. Be sure to request a serum titer for Herpes B. The other serum sample should be labeled Sample 1 and should be frozen for use at a later date (they are disposed of after first sample is successfully received and tested.)

c When results from the B Virus Resource Laboratory are received by the ADL, copies of the results should be distributed to the veterinary technician for recording in the Bite/Scratch Log and the area veterinary resident and faculty. The ADL is also responsible for faxing results to either (734) 998-6562 or (734) 763-7405. Phone UM Occupational Health Services at (734) 764-8021 to confirm the receipt. In the event that a positive viral culture occurs, emphasize the priority nature of the information during the phone conversation.

d Follow-up samples
   i The veterinary resident should obtain a second serum samples from the monkey two weeks after the injury was sustained if the first tests was not at the maximum detectible level as found by the Georgia State Diagnostic Laboratory. The second sample should be labeled Sample 2. Sample 2 should be sent to the National B Virus Resource Laboratory for Herpes B serology. Be certain to request titers so that it can be determined whether
a rise in titer has occurred; a rise in the monkey's titer indicates active infection.

ii Follow-up sample results are distributed in the same manner as initial samples. (See G.4.c)

F. Monkey Bite/Scratch Kits

1. Purpose
   a First aid kits are maintained in or near all monkey housing areas. Personnel sustaining injuries should treat the wound using the contents of the kit before proceeding to UM Occupational Health Services/Emergency Room.

2. Responsibility
   a In ULAM managed areas, the Veterinary Technicians Office maintains the Monkey Bite/Scratch Kits. In non-ULAM managed areas, the employing unit is responsible for maintenance of its own Monkey Bite/Scratch Kits. The unit responsible for kit maintenance must educate employees on the location of these kits.
   b Bite/Scratch kit content list – See Appendix A
      i Supplies can be purchased from the vendors listed below or from ULAM (contact the ULAM Office at 764-0277). All forms in the kit are available from the UCUCA Office (763-8028).

3. Restocking
   a The laboratory/unit with responsibility for the kit is also responsible for restocking it. Supplies can be purchased from the vendors listed above or from ULAM (contact the ULAM Office at 764-0277). All forms in the kit are available from the UCUCA Office (763-8028).

4. Copies of the kit forms are attached. Appendixes B- E

IV. Training regarding Herpes B infections and the use of Monkey Bite/Scratch Kits

A. ULAM provides training on Herpes B infections and the use of Monkey Bite/Scratch Kits to all personnel working with monkeys. Such training is mandatory for compliance with current animal care standards. To arrange for training, contact the ULAM Training Core (734-763-8039). Training schedules and registration can also be found at http://www.ulam.umich.edu/Training.htm

B. All personnel receiving training will complete the form, Certification of Training on Herpes B Virus Infections and Macaque Monkey Bite/Scratch Protocol. Copies of the completed form should be maintained by the Principal Investigator/Supervisor, and the individual receiving training.

V. Previous Authors: HG Rush
## APPENDIX A: Contents of Kit

<table>
<thead>
<tr>
<th>ITEM</th>
<th>VENDOR</th>
<th>STOCK NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hibiclens (8 ounce)</td>
<td>Henry Schein (800-872-4346)</td>
<td>659-1853</td>
</tr>
<tr>
<td>1 liter bottle of saline for irrigation</td>
<td>Material Management</td>
<td>5266</td>
</tr>
<tr>
<td>3 sterile packs of gauze sponges</td>
<td>Material Management</td>
<td>1741</td>
</tr>
<tr>
<td>1 pair of disposable nitrile gloves size M</td>
<td>Fischer Scientific</td>
<td>19-149-864B</td>
</tr>
<tr>
<td>1 pair of disposable nitrile gloves size XL</td>
<td>Fischer Scientific</td>
<td>19-149-864D</td>
</tr>
<tr>
<td>Non-sterile gauze sponges</td>
<td>Material Management</td>
<td>1740</td>
</tr>
<tr>
<td>Dacriose</td>
<td>B2 Pharmacy</td>
<td>N/A</td>
</tr>
<tr>
<td>Stainless steel bowl</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Copy of Macaque Monkey Bite/Scratch Exposure SOP</td>
<td>Contact UCUCA Office (763-8028)</td>
<td>N/A</td>
</tr>
<tr>
<td>Macaque Exposure Checklists-Instructions for first aid and reporting processes</td>
<td>Contact UCUCA Office (763-8028)</td>
<td>N/A</td>
</tr>
<tr>
<td>Summary of Emergency Room Protocol</td>
<td>Contact UCUCA Office (763-8028)</td>
<td>N/A</td>
</tr>
<tr>
<td>This list (Contents of Kit)</td>
<td>Contact UCUCA Office (763-8028)</td>
<td>N/A</td>
</tr>
<tr>
<td>National B Virus Submission Form</td>
<td>ULAM ADL, the last page of this document, or <a href="http://www2.gsu.edu/~wwwvir/">http://www2.gsu.edu/~wwwvir/</a></td>
<td>N/A</td>
</tr>
</tbody>
</table>
**MACAQUE EXPOSURE CHECKLIST**
Instructions for first aid and reporting processes

### FIRST AID PROCEDURES FOR BITES, SCRATCHES, AND NEEDLESTICKS

1. Put on exam gloves before scrubbing the wound. If the injury involves a single hand, glove the other hand before proceeding. If the injury does not involve a hand, glove both hands before proceeding. Place non-sterile gauze sponges in the stainless steel bowl. Moisten the sponges with saline first, then pour Hibiclens onto sponges to saturate them.

2. With a gloved hand, scrub the wound vigorously with Hibiclens-soaked sponges for 3-5 minutes. Discard gauze and pour saline on the wound to rinse area. Repeat scrubs and rinses two more times for a total of 15 minutes of scrubbing. Cover wound with sterile gauze.

3. Call UM Occupational Health Services at 734-764-8021 and notify them of your injury and your expected visit.

4. Complete **primate** portion of National B Virus Submission Form. This form is included in the Monkey Bite Scratch Kit. Include primate’s name, clinical number, date of injury, purpose of injury (injury baseline), and type of injury (needlestick etc). **Bring the completed B Virus form with you when you go to UM Occupational Health Services/Emergency room.**

### FIRST AID PROCEDURES FOR EYE SPLASHES

1. Rinse eyes immediately with water at an eye wash station or sink for 15 minutes. If water is not available, use Dacriose irrigating solution. **DO NOT USE HIBICLENS IN THE EYES.**

2. Call UM Occupational Health Services at 734-764-8021 and notify them of your injury and your expected visit.

5. Complete **primate** portion of National B Virus Submission Form. This form is included in the Monkey Bite Scratch Kit. Include primate’s name, clinical number, date of injury, purpose of injury (injury baseline), and type of injury (needlestick etc). **Bring the completed B Virus form with you when you go to UM Occupational Health Services/Emergency room.**
### PROCEDURES FOLLOWING FIRST AID

1. After following the First Aid Procedures above, proceed directly to the UM Occupational Health Services/Emergency Room.

2. Inform your supervisor of the injury. Contact or have your supervisor contact the ULAM area veterinary technician (764-0277) to report the injury.

3. Submit workman's compensation forms (i.e., Supervisor's Report of Employee Accident or Illness, Form no. UM MIOUSHA 101A).

### SUMMARY OF EMERGENCY ROOM MONKEY BITE PROTOCOL

(Refer to Monkey Bite Protocol found in ED Policy and Procedure Manual for additional information.)

<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Repeat irrigation/cleansing. Eye irrigation: 15 minutes with normal saline. Wound irrigation: 15 minutes with Chlorpactin.</td>
</tr>
<tr>
<td>2.</td>
<td>Perform a viral culture of the wound.</td>
</tr>
<tr>
<td>3.</td>
<td>Draw a red top tube.</td>
</tr>
<tr>
<td>4.</td>
<td>Check tetanus immunization status; administer if necessary.</td>
</tr>
<tr>
<td>5.</td>
<td>Contact ID fellow.</td>
</tr>
<tr>
<td>7.</td>
<td>Provide copy of discharge instructions to patient.</td>
</tr>
<tr>
<td>8.</td>
<td>Place this form in the follow-up box at the registration desk.</td>
</tr>
</tbody>
</table>
Appendix E

Please fill out completely and include with shipment.

_Acrobat writer user can fill out, save, and email the form / Acrobat reader (higher than 5) user can fill out, print, and fax the form._

1. Institution/Company name:  
2. Mailing Address:  
   City:  State:  Zip:  
3. Billing Address:  
   City:  State:  Zip:  
4. Purchase Order Number:  
5. Billing Information  
   a) Credit Card:  
      □ Visa  □ Mastercard  
      Card Number:  Expiration Date:  Contact Person:  Phone:  
   b) other:  
6. Testing Requested by:  
7. Phone:  
8. Emergency Phone:  
9. Send results to #2 address [ ] if not use a textbox below  
10. Phone:  
11. Emergency Phone:  
12. FAX#:  
13. Emergency Pager #:  
14. email:  
Special Instructions:

**Human Sample Information:** Mark tubes clearly.

15. Name or ID:  
16. Test Purpose:  
17. Injury Type:  
18. Injury Date:  
   19. Injury related Primate’s ID:  
20. Species:  
21. Serum?  
   □ Yes  □ No  
22. Total serum tubes:  
23. Collection date(s):  
24. Virology?  
   □ Yes  □ No  
25. Total virology tubes:  
26. Collection date:  
27. Sites:  
   □ Wound  □ Buccal  
   □ Right eye  □ Left eye  □ Biopsy  
Special Instructions:

**Primate Sample Information:** Mark tubes clearly

28. Name or ID:  
29. Species:  
30. Test Purpose:  
31. Injury Type:  
32. Injury Date:  
   33. Injury related Human’s ID:  
34. Serum?  
   □ Yes  □ No  
35. Total serum tubes:  
36. Collection date(s):  
37. Virology?  
   □ Yes  □ No  
38. Total virology tubes:  
39. Collection date:  
40. Sites:  
   □ Buccal  □ Right eye  
   □ Left eye  □ Genital  □ Lesion  
Special Instructions:

A. If you have any problems or questions regarding sample collections or shipment, please contact our laboratory.
B. Please contact our laboratory prior to shipping so we can schedule your samples for testing.
C. Phone: 404-413-6550  Fax: 404-413-6556  email: bvirus@gsu.edu

*Human testing should be requested by a physician.*

FOR BV LABORATORY USE ONLY  
Institution Code:  
Condition:  
Case#:  
Total samples:  
Rec’d Date:  
Priority:  
Acc.#:  
Rec’d Time:  
Tech:  
Does tube info match Paperwork?  
□ Yes  □ No  

(6/96)