Needlestick and Splash Exposure Flow Chart
Clinical Practice Guidelines

If ANY student experiences a needlestick or splash exposure ANY time of day/night, they need to page #11709 which will be forwarded to: (**in the event the paging system is down, see bottom of page 6)

1) Student Health working hours are M/W/Th/F 7:30a.m.-4:00p.m., Tues 7:30a.m. – 7:00 p.m. All other times are "off hours".
2) Nursing Supervisor all other times. When Nursing Supervisor receives this page, the Nursing Supervisor will:

If not already done, instruct student on basic first aid:
1) Wash site immediately, taking care not to injure or abrade the exposed site
   a.) Eyes /mouth - flush with water, remove contact lens if applicable
   b.) Open wound - clean with antiseptic soap and water immediately
2) Confirm that injury occurred at LUMC. If not, redirect student to appropriate affiliate.

1) Provide student emotional first aid over phone (or in person when necessary) and get contact information. (Optional script available to aid in dialogue.)
   (At any point, the injured student may go directly to Student Health during working hours or ED during off hours.)
2) Within 72 hours, report incident via secure voice mail to Student Health (708) 216-2458. Give name, date of birth, phone # and name/Medical record # of person who was the source of exposure.

Is source patient known?

NO

YES

Review source patient’s medical record. Does source patient have any documented/known HIV?

YES, known HIV positive

Order source testing on source patient to determine source HepB/HepC

Example of “unknown” source patient:
* Needle in sharps container or trash
* Unclear of actual patient

Instruct student to go to Student Health during weekdays 7:30 a.m.-4:00p.m.

Outside of those hours, go to Emergency Department (ED) TRIAGE NURSE for further work up and treatment (see page 6 of flowchart). ED will follow Post Blood/Body Fluid Exposure Policy.

NO

YES

1) Order source testing on source patient by text paging hospitalist on call (12666) “Exposure: urgent source test needed!” with extension for return call. Hospitalist will call Nursing Supervisor within 10 minutes to provide telephone order with read back.
2) Inform injured student that HIV results will be released about 1 hour after source testing is sent through Student Health during working hours (216-2312) or in the ED during off hours. (note: injured student should physically go to ED TRIAGE NURSE to get registered in order to obtain source HIV results.)
3) If injured student wishes to be seen by ED at any time while HIV test is running, direct them to the ED Triage Nurse.

Responsibilities of:
Nursing Supervisor (off hours) otherwise Student Health
Hospitalist on call
Emergency Department (off hours) otherwise Employee Health
Infectious Disease Fellow

Nursing Supervisor on call (after hours) will call Employee Health (6-2312) and leave message including:
1) Injured student name
2) Time of injury
3) Source patient when known
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When injured student presents in person to ED/(Student Health), ED Physician/(Student Health) will assess if student is AT RISK for bloodborne pathogen exposure. If YES to EITHER of the following two questions, the student is considered AT RISK:

1) Was student stuck by needle or cut with sharp object that was contaminated by blood?
2) Did patient’s potentially infectious body fluids come in contact with student’s mucus membrane OR non-intact skin?

If YES to any of the above, proceed to next section.
If NO exposure occurred, further management and treatment at discretion of ED Physician.

Potentially infectious body fluids

Potentially infectious body fluids include:

- Blood
- Body fluids containing visible blood
- Semen
- Vaginal secretions
- Cerebrospinal fluid
- Synovial fluid
- Pleural fluid
- Peritoneal fluid
- Pericardial fluid
- Amniotic fluid

Note: Feces, nasal secretions, saliva, sputum, sweat, tears, urine, and vomitus are NOT considered potentially infectious UNLESS they contain blood.

Special circumstances:
*Any direct contact (i.e. contact without barrier protection) to concentrated virus in a research laboratory or production facility is considered exposure that requires clinical evaluation.*
*For human bites, the clinical evaluation must include the possibility that both the person bitten and the person who inflicted the bite were exposed to blood borne pathogens.*

If student presents in person to ED/(Student Health), ED Physician/(Student Health) will ensure that student has current Tetanus vaccine <10 years (<5 yrs for puncture wounds) and immune Hepatitis B antibody on file in the following areas of the medical record:

a. Check lab section
b. Check media tab for scanned outside lab results
c. Check snapshot for Tetanus record

If student presents in person to ED/(Student Health), ED Physician/(Student Health) will inform student of results and instruct them to contact Student Health on the very next weekday morning (216-2312) to follow up with Hep B/Hep C assessment and further management. Student can opt to visit ED at any time for any reason post-exposure. Student Health will follow Clinical Practice Guidelines (see page 5 of flow chart).

Student will be quickly triaged through ED to receive source patient results. (Student and ED Physician/Student Health can determine whether student returns to or is removed from patient care while awaiting rapid HIV results.)

Note: current guidelines do NOT require that source testing be done on injured student unless source patient is positive for HIV, Hep B or Hep C (as described on page 3 and 5).

ED Physician/Student Health will follow Clinical Practice Guidelines on page 3.

ED Physician may have to contact Nursing Supervisor if the injured student does not know the source patient name/MR#.
**HIV POSITIVE SOURCE (For ED/Student Health)**

For HIV Positive Source, ED Physician/Student Health will contact:

1) Admitting attending physician of source patient
2) Infectious Disease Consult Pager 74163

At time of initial evaluation in ED/Student Health, student should be scheduled for follow up in Infectious Disease (ID) Clinic within 7 days. Contact ID Clinic at 708-216-5024 or 708-216-3135.

ED/Student Health will obtain baseline studies of HIV antigen and antibody (HIVABG), CMP (stat), CBC with diff (and beta HCG if female during childbearing years).

Post Exposure Prophylaxis (PEP) should be started *as soon as possible* but less than 72 hours post exposure and continue for 28 days. If exposure is greater than 72 hours then ID Fellow will determine if PEP should still be administered.

ED/Student Health will obtain height and weight of the student and calculate Creatinine Clearance in order to determine the appropriate tenofovir/emtricitabine dose. (Epic can automatically calculate CrCl.)

**Treatment Regimen:** Unless exposure is judged as NO RISK by Student Health/ED (in which case no PEP is needed) or Source patient known to have antiretroviral resistance (in which case recommendations for PEP should be tailored), Infectious Disease Fellow will proceed with the following treatment and may alter the treatment based on assessment of source patient’s

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle stick</td>
<td>0.3% (1/300 chance)</td>
</tr>
<tr>
<td>Mucous Membrane Exposure</td>
<td>0.1% (1/1000 chance)</td>
</tr>
<tr>
<td>Small amount of blood splash to intact skin</td>
<td>No risk</td>
</tr>
<tr>
<td>Urine (not bloody) splash to skin or mucous membranes</td>
<td>No risk</td>
</tr>
</tbody>
</table>
Needlestick and Splash Exposure Flow Chart
Clinical Practice Guidelines

HIV POSITIVE SOURCE (For Infectious Disease Fellow)

<table>
<thead>
<tr>
<th>PEP Choice</th>
<th>Renal Function</th>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIT A</td>
<td>CrCl ≥ 50</td>
<td>tenofovir 300mg/emtricitabine 200mg 1 tab by mouth ONCE daily, plus raltegravir 400mg 1 tab by mouth TWICE daily</td>
</tr>
<tr>
<td>KIT B</td>
<td>CrCl 30-49</td>
<td>tenofovir 300mg/emtricitabine 200mg 1 tab by mouth q 48 hours, plus raltegravir 400mg 1 tab by mouth TWICE daily</td>
</tr>
</tbody>
</table>

**if CrCl < 30 an alternative regimen will be chosen without tenofovir**

PEP kits containing a 7 day supply of tenofovir/emtricitabine and raltegravir are available from the inpatient pharmacy. The remaining 21 days of medication should be filled at an outpatient pharmacy with a prescription.

If a PEP regimen differs from tenofovir/emtricitabine/raltegravir, then a prescription should be given to the student to be filled.

Student Health/ID will obtain repeat CBC with diff and CMP 2 weeks after starting HIV prophylaxis.

Student Health/ID will obtain HIV antigen and antibody (HIVABG) at 6 weeks and 4 months post exposure.

Any communication with injured student can be documented as a brief clinical update note in EPIC.
HEPATITIS B SURFACE ANTIGEN POSITIVE SOURCE (For ED/Student Health)

If student has not been tested for Hepatitis B Surface Antibody, draw Hepatitis B Surface Antibody (HBSAB).

**Is anti-HBs GREATER THAN 10 MIU/ml?**

- **YES**
  - No treatment necessary

- **UNKNOWN**
  - If student anti-HBs is unknown and cannot be tested and high risk (current/former IV drug user) continue as if anti-HBs is less than 10 MIU/ml.
  - **Initiate HBIG x 1 within 24 hours and revaccinate in Student Health / ED.**

<table>
<thead>
<tr>
<th>Hepatitis B conversion after Hepatitis B exposure risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure</td>
</tr>
<tr>
<td>Up to 30% (3/10 chance)</td>
</tr>
<tr>
<td>greater if Hbe antigen +</td>
</tr>
<tr>
<td>Mucous Membrane Exposure</td>
</tr>
<tr>
<td>Risk not quantified</td>
</tr>
</tbody>
</table>

If revaccinated, Student Health will repeat anti-HBs titer in one month.

HEPATITIS C POSITIVE SOURCE (For ED/Student Health)

ED Staff/Student Health will obtain baseline Hepatitis C antibody (HCVAB), HCV-RNA, and Liver Function (LFT). Immunoglobulin and antiviral agents are **not** recommended for post-hepatitis C exposure prophylaxis.

Instruct student to follow up with Student Health at 4-6 weeks and 4-6 months post exposure.

<table>
<thead>
<tr>
<th>Hepatitis C conversion after Hepatitis C exposure risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle stick</td>
</tr>
<tr>
<td>1.8% (~2/100 chance)</td>
</tr>
<tr>
<td>Mucous Membrane Exposure</td>
</tr>
<tr>
<td>Risk not quantified</td>
</tr>
</tbody>
</table>

Student Health will draw the following labs at 4-6 weeks, and 4-6 months post exposure: Hepatitis C antibody (HCVAB) and HCV-RNA. If patient source HIV AND Hep C positive, Student Health will obtain additional HIV ABG and Hep C antibody at 12 months post exposure. These students will be seen in the ID clinic.

Students with a positive antibody to HCV and/or positive HCV-RNA will be referred for prompt evaluation by a Hepatologist. There is some limited evidence that treating patients in the acute phase of HCV infection has benefits.
UNKNOWN SOURCE (For ED/Student Health)

For Unknown HIV:

ED Physician/Student Health assess circumstance of exposure and contacts ID fellow as needed. The severity of exposure and epidemiologic risk will need to be assessed on a case by case basis.

If exposed student meets risk criteria to warrant exposed person’s treatment, then the PEP regimen should be as per the known HIV source on page 3 of flow chart.

For Unknown Hepatitis (Hep B and Hep C):

ED Physician/Student Health assesses circumstance of exposure.

If exposed student meets risk criteria to warrant exposed person’s treatment, then the PEP regimen should be as per the known Hep B/Hep C source on page 5 of flow chart.

**In the event the paging system is down and you cannot page 11709,

1) During weekday working hours 7:30a.m.-4:00p.m., call 6-3156
2) During weekends and off hours, call 6-0333 and state "nursing supervisor" to use Vocera to contact nursing supervisor