



Curbing Monkeypox (MPox) in Our Community

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Objectives

Upon completion of this educational activity, you will be able to:

- Explain current outbreak of monkeypox (Mpox) to friends, colleagues, patients
- Evaluate patients with lesions/rashes and test for Mpox when indicated

 Use prevention & treatment medications (vaccines and oral/IV medications) to prevent & treat Mpox when indicated



Agenda

- Definitions & Questions
- How did we get here?
- State of known Mpox cases in USA & the world
- Symptoms, presentations of Mpox in 2022
- Testing when to order, how to order
- Infection prevention clinic, hospital, and home
- Treatment
- FAQ & Q&A
- Q&A



Definitions

- Mpox = monkeypox (we will use Mpox for this talk)
- Tpoxx = trade name for tecovirimat, an antiviral used to treat Mpox
- Jynneos = vaccine to prevent infection with Mpox
- PEP = Post-exposure prophylaxis
- PEP++ = vaccination campaign to prevent infections in communities likely to have been exposed to Mpox



- Which communities are disproportionately affected by Mpox and should be prioritized for vaccination?
 - A. Pregnant people
 - B. Children under 18
 - C. People living with HIV
 - D. Gay, bisexual, and other men who have sex with men



- Which drug is FDA approved to treat Mpox?
 - A. Nirmatrelvir/ritonavir (Paxlovid)
 - B. Brincidofovir
 - C. Tecovirimat
 - D. Baloxavir marboxil
 - E. None of the above



- What is the preferred way to administer Jynneos (vaccine for smallpox and Mpox) to adults over 18 (without a contraindication)?
 - A. Intramuscular (deltoid, etc.)
 - B. Subcutaneous
 - C. Intradermal



- Is the number of new cases of Mpox in the United States on the decline?
 - A. Yes
 - B. No
 - C. It's complicated



Background & Historical Context

- Smallpox (variola), monkeypox, and cowpox are all in the same family of viruses (orthopoxviruses)
- Smallpox disease was terrible 3-4/10 died; scars, disability if you survived (2 strains, differentiated clinically based on mortality)
- Variolation for smallpox around for centuries led to vaccination today



Background and Historical Context

- Timelines:
 - Smallpox eradication (1980 globally, 1942 USA)
 - Cessation of vaccination campaign (1980s [USA stopped vaccinating kids 1972])
 - Detection of Mpox cases Central Africa (1970s)
 - WHO monitored cases (knowing likely increase after cessation of smallpox campaign)
 - 20-fold increase in cases 2005-2007 in DRC
 - Significant increase since 2017 in Nigeria
 - Significant spread Central/West Africa in 2022
 - Cluster of cases outside of Central/West Africa (including USA) May 2022



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- Viral zoonotic infection (same genus as smallpox, vaccinia)
- Discovered in monkeys in a research lab in the 1950s (hence the name)
- Reservoir unknown thought to be small animals (rodents, tree squirrels)
- Before 2022 outbreak, 2 distinct strains
 - Clade I focused in/around Central Africa
 - Clade II focused in/around Western Africa
- Overall mortality is lower than for smallpox (11% from Africa)
 - Very few deaths in 2022 outbreak thus far



Worldwide Mpox Cases (11.14.2022)



Legend

Has not historically reported monkeypox

Has historically reported monkeypox

Data Table (Click row to filter map)				
Location	Cases	Deaths	^	
United States Of America	28,947	11		
Brazil	9,606	12		
Spain	7,377	2		
France	4,102	0		
United Kingdom	3,703	0		
Germany	3,670	0		
Colombia	3,630	0		
Peru	3,299	0	-	



https://www.cdc.gov/poxvirus/monkeypox/response/2022/world-map.html

CDC Map – U.S. Cases (11.14.2022)

2022 U.S. Map & Case Count

Data as of November 14 2022 at 2:00 pm EDT Español | Print





- 1. https://www.cdc.gov/poxvirus/monkeypox/response/2022/us-map.html
- <u>https://www.cdc.gov/poxvirus/monkeypox/cases-data/technical-report/report-2.html</u>

Symptoms, presentations

- Cases predominantly seen in gay, bisexual, and other men who have sex with men
 - People living with HIV represent ~45% of cases
- Incubation is 7-8 days (Spain, Netherlands 2022)
- Concomitant STIs found with Mpox
 - Syphilis, GC/CT 15-30% in series



Symptom, Monkeypox cases reported to CDC: Signs and Symptoms

 Cases predor men who hav

- People living
- Incubation is
- Concomitant
 - Syphilis, GC

Rash					97%
Fever			65%	1	
Malaise (tiredne:	ss)		64%		
Chills			61%		
Pruritis (itching)			58%		
Enlarged Lymph	Nodes (swollen gla	nds)	• 57%		
Headache			56 %		
Myalgia (muscle	aches)		54 %		
Rectal Pain		• 40%			
Rectal Bleeding	• 22%				
Tenesmus (cram	ping pain in the rec	tum)			
Pus or blood in s	• 18%				
Vomiting or Nau	• 18% sea				
Proctitis (swelling	 15% g, soreness in the re 	ectal area)			
Abdominal Pain	• 15%				
6% Conjunctivitis (re	dness or pain in the	e eye)			
	20%	40%	60%	80%	100%



*Patients not thought to be contagious until symptoms present – but asymptomatic transmission being investigated ** Some patients tested positive without rash – though rare

What can the rash look like?





From Basgoz N, Brown CM, Smole SC, et al. Case 24-2022: A 31-Year-Old Man with Perianal and Penile Ulcers, Rectal Pain, and Rash. Epub ahead of print. *Copyright* © Jun 15 2022. Massachusetts Medical Society. Reprinted with permission from Massachusetts Medical Society

Monkeypox lesions, United States 2022

permission from patients, CDC 2022

2022-06-29 14:14:50

https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2022.27.22.2200411 https://www.youtube.com/watch?v=h-5zxjq56pU

What can the rash look like?

AETC AIDS Education & Training Center Program Southeast

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)01436-2/fulltext

How is it spread? Is it an STI?

- Data and knowledge are evolving
- Infectious from onset of rash to when fresh skin replaces lesions
 - 2-4 weeks on average
- Methods of transmission:
 - Respiratory: requires close and/or prolonged contact
 - Skin-to-skin: lesions thought to have significant infectious potential – close, intimate contact (kissing, sharing bed, cuddling, etc.)
 - Sexual: No data likely driving some transmission
 - Fomite: towels, linens, sex toys, etc.
- Inefficient spread through casual and brief contact
- Healthcare workers are at extremely low risk

Testing – when & how?

- Two pathways
 - Commercial lab
 - State lab
- Tips:
 - Do at least 2 swabs (one from each lesion)
 - Use a sturdy swab (non-wood)
 - Place in sterile, dry container
 - Decide which lab you want to send it to

SWAB + DRY container

Testing for Mpox – Sending to State Lab

- Must call for approval (to county health department)
- Need to send 2 swabs per lesion
 - Swab from 2 sites
 - 4 swabs total
- Must be sent **dry** for the state lab
- You can send to commercial labs
 - Testing procedure varies by lab
 - Turnaround time 2-5 days

SWAB + DRY container

Infection Control

Hospital

- Predominantly an outpatient disease
- Some hospitalizations due to extreme pain, location of lesions (e.g. eye, mouth, anogenital region)
- Linens, visitors, and droplet precautions

Clinic

- Gloves & mask for initial encounters
- N95, eye protection, gown, gloves when swabbing (to protect if blister bursts, etc.)
- Wipe down surfaces, replace paper
- Suggest patients wear covering clothing if possible, mask
- Clinic is very low-risk for transmission

Mpox – Isolation/IC at Home

Isolation of People with Monkeypox

- People with monkeypox should isolate until rash has fully resolved, the scabs have fallen off, and a fresh layer of intact skin has formed.
- · People with monkeypox should follow these recommendations until cleared by state or local public health officials:
 - Do not leave the home except as required for emergencies or follow-up medical care.
 - · Friends, family or others without an essential need to be in the home should not visit.
 - Avoid close contact with others.
 - Avoid close contact with pets in the home and other animals.
 - · Do not engage in sexual activity that involves direct physical contact.
 - Do not share potentially contaminated items, such as bed linens, clothing, towels, wash cloths, drinking glasses or eating utensils.
 - Routinely clean and disinfect commonly touched surfaces and items, such as counters or light switches, using an EPA-registered disinfectant 🖸 (such as List Q 🖸) in accordance with the manufacturer's instructions.
 - · Wear well-fitting source control (e.g., medical mask) when in close contact with others at home.
 - Avoid use of contact lenses to prevent inadvertent infection of the eye.
 - · Avoid shaving rash-covered areas of the body as this can lead to spread of the virus.
- Bathroom usage:
 - If possible, use a separate bathroom if there are others who live in the same household.
 - If there is not a separate bathroom in the home, the patient should clean and disinfect surfaces such as counters, toilet seats, faucets, using an EPA-registered disinfectant (such as List Q ^[]) after using a shared space. This may include during activities like showering, using the toilet, or changing bandages that cover the rash. Consider disposable glove use while cleaning if rash is present on the hands.
- Limit exposure to others:
 - Avoid contact with unaffected individuals until the rash has resolved, the scabs have fallen off, and a fresh layer of intact skin has formed.

https://www.cdc.gov/poxvirus/monkeypox/clinicians/infectio n-control-home.html#print

Can we treat and prevent it?

Outpatient & Inpatient

- Tecovirimat (Tpoxx)
- Vaccinia Immune Globulin (IV)
- Cidofovir
- Brincidofovir
- Symptomatic relief

Prevention:

- Jynneos & ACAM vaccines
- Alternative dosing strategies

Treatment Guidance - Tecovirimat

Interim Clinical Guidance for the Treatment of Monkeypox

The ongoing monkeypox outbreak in the United States is caused by Clade IIb of the monkeypox virus. Patients with monkeypox benefit from supportive care and pain control that is implemented early in the illness (Clinical Considerations for Pain Management of Monkeypox). Illness depends on a person's immune response. For most patients with intact immune systems, supportive care and pain control may be enough. For information about skin care for individuals with monkeypox lesions, please see <u>Monkeypox: Caring for the Skin</u> Chever, because prognosis depends on multiple factors, such as initial health status, concurrent illnesses, previous vaccination history, and comorbidities, supportive care and pain control may not be enough for some patients (for example, those with weakened immune systems). In these cases, treatment should be considered.

Treatment should be considered for use in people who have the following clinical manifestations:

- Severe disease consider severe disease when a patient has conditions such as hemorrhagic disease; a large number of lesions such that they are confluent; necrotic lesions; severe lymphadenopathy that can be necrotizing or obstructing (such as in airways); involvement of multiple organ systems and associated comorbidities (for example, pulmonary involvement with nodular lesions; sepsis; encephalitis; myocarditis; ocular or periorbital infections); or other conditions requiring hospitalization
- Involvement of anatomic areas which might result in serious sequelae that include scarring or strictures these
 include lesions directly involving the pharynx causing dysphagia, inability to control secretions, or need for parenteral
 feeding; penile foreskin, vulva, vagina, urethra, or anorectum with the potential for causing strictures or requiring
 catheterization; anorectal lesions interfering with bowel movements (for example, severe pain); and severe infections
 (including secondary bacterial skin infections), especially those that require surgical intervention such as debridement.

Treatment should also be considered for use in people who are at high risk for severe disease:

- People currently experiencing severe immunocompromise due to conditions such as advanced or poorly controlled human immunodeficiency virus (HIV), leukemia, lymphoma, generalized malignancy, solid organ transplantation, therapy with alkylating agents, antimetabolites, radiation, tumor necrosis factor inhibitors, high-dose corticosteroids, being a recipient of a hematopoietic stem cell transplant <24 months post-transplant or ≥24 months but with graftversus-host disease or disease relapse, or having autoimmune disease with immunodeficiency as a clinical component¹
- Pediatric populations, particularly patients younger than 8 years of age²
- Pregnant or breastfeeding people³
- People with a condition affecting skin integrity conditions such as atopic dermatitis, eczema, burns, impetigo, varicella zoster virus infection, herpes simplex virus infection, severe acne, severe diaper dermatitis with extensive areas of denuded skin, psoriasis, or Darier disease (keratosis follicularis)

Spotlight on Tecovirimat (Tpoxx)

- FDA approved to treat smallpox in 2018 for adults & children (13kg & above)
 - 2022 IV formulation FDA approved
- Efficacy data:
 - Animal rule monkeypox, rabbitpox in those animals
 - Human safety data
- Broad-spectrum *in vitro* activity against orthopoxviruses (Mpox, cowpox, rabbitpox, etc.)
- Oral bioavailability is based on a full fatty meal
- Works by inhibiting VP37 envelope wrapping protein → prevents formation of enveloped virus & dissemination of infection

Spotlight on Tecovirimat (Tpoxx)

- OK but what does it really do?
 - Anecdotal reports of reduced viral shedding, improved time to healing
 - But- we don't have data to prove this
- Animal reports show reduction in mortality with orthopoxvirus infections
- What are the risks why not just give to everyone?
 - Pan-orthopoxvirus antiviral front line for treatment
 - Single point mutation can significantly impact function
 - Other treatments have less favorable tolerability profiles

https://actgnetwork.org/studies/a5418-study-of-tecovirimat-for-human-monkeypox-virus-stomp/

Tecovirimat – how to obtain at UK?

Refer to Bluegrass Care Clinic if someone meets criteria

- Inpatient- consult ID
- We will assess to see if patient can enroll in a clinical trial
- We will handle paperwork, do informed consent, and follow-up
- We will refer back to primary provider when the patient is better

Managing Symptoms of Mpox

Great resources for pain management & Mpox:

 CDC has a dedicated page (new-9/15)
 NYC Department of Health has a document

General Considerations for Pain Management

Healthcare professionals should assess pain in all patients with monkeypox virus infection and recognize that substantial pain may exist from mucosal lesions not evident on physical exam; validation of the pain experience can build trust in the care provider and care plan. Topical and systemic strategies should be used to manage pain. Pain management strategies should be individualized and patient-centered, tailored to the needs and context of an individual patient.

Over-the-counter medications (e.g., acetaminophen, NSAIDs) are recommended for general pain control for patients with monkeypox (*5*). Topical steroids and anesthetics such as lidocaine could also be considered for local pain relief (*5*). Topical lidocaine or other topical anesthetics should be used with caution on broken skin or on open or draining wounds. To minimize the risk of autoinoculation (i.e., transferring virus from a lesion to another site on the body), persons with monkeypox virus infection or their caregivers should use disposable gloves when applying topical medications to lesions, then <u>dispose of the gloves</u> and <u>practice hand hygiene</u>.

In some circumstances, prescription pain medications such as gabapentin and opioids have been used for short-term management of severe pain not controlled with other treatments including acetaminophen, NSAIDs, and/or topical medications (2). Use of opioids for pain control should be balanced against the risk of side effects such as constipation and other risks such as potential for unintended long-term use of opioids, development of an opioid use disorder, and overdose. Use of prescription pain medication, especially opioids, should be undertaken only with careful consideration of a patient's comorbid medical conditions, concurrent medications, values and preferences related to opioids, and other factors which influence the safety of such medications, and should be considered only if the benefits of opioid therapy are anticipated to outweigh the risks to the patient. Patients should be meaningfully engaged in decisions about whether to start opioid therapy. If opioids are prescribed, immediate-release opioids at the lowest effective dose should be prescribed for no longer than the expected duration of pain severe enough to require opioids. To prevent constipation associated with opioid use, patients should be advised to increase hydration and fiber intake and to maintain or increase physical activity; stool softeners or laxatives might be needed. See <u>CDC's Opioid Prescribing Guideline Resources</u>.

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Proctitis

Rectal pain is a common complication of monkeypox infection, and proctitis has been frequently reported (1-3).

https://www.cdc.gov/poxvirus/monkeypox/clinicians/pain-management.html

https://www1.nyc.gov/assets/doh/downloads/pdf/cd/monkeypox-treatment-guidance-interim.pdf

Vaccination for Mpox

- Background of smallpox and mpox vaccines
- Who is eligible in Kentucky?
- Jynneos
- Intradermal (ID) implementation to expand amount of vaccine
- Logistics, co-administration with other vaccines

Vaccination for Mpox

Monkeypox Vaccine Administration U.S. Map

https://www.cdc.gov/poxvirus/monkeypox/interim-considerations/jynneos-vaccine.html

Smallpox and MPox Vaccines

FDA approved (different than tecovirimat) for smallpox

and mpox

TABLE 2. Distinctions between ACAM2000 and JYNNEOS that might facilitate decision-making among vaccinees at risk for orthopoxvirus infections — United States, 2022

	Vaccine product			
Characteristic	ACAM2000*	JYNNEOS		
Vaccine virus	Replication-competent vaccinia virus	Replication-deficient modified vaccinia Ankara		
"Take" following vaccination ⁺	Yes	No		
Risk for inadvertent inoculation and autoinoculation	Yes	No		
Risk for serious adverse event	Yes	No significant events identified during clinical trials		
Risk for cardiac adverse events	Myopericarditis in 5.7 per 1,000 primary vaccinees	Clinical trial data limited in evaluating this outcome; however, <mark>no significant events in</mark> data abstracted from single study arms ^s		
Assessment of effectiveness	FDA assessed by comparing immunologic response and take rates to Dryvax*	FDA assessed by <mark>comparing immunologic response to ACAM2000</mark> and animal studies		
Administration	Percutaneously using a bifurcated needle by multiple puncture (scarification) technique, [¶] single dose	Subcutaneously, 2 doses 28 days apart		

Abbreviation: FDA = Food and Drug Administration.

*Both ACAM2000 and Dryvax are derived from the New York City Board of Health strain of vaccinia; ACAM2000 is a second generation smallpox vaccine derived from a clone of Dryvax, purified, and produced using modern cell culture technology.

* A "take" is postvaccination lesion often used as a marker of successful vaccination after ACAM2000.

⁸ Because JYNNEOS is a replication-deficient virus vaccine, serious adverse events are believed to be fewer. However, the mechanism of myopericarditis in persons who receive ACAM2000 is poorly understood; for this reason, it is unknown whether persons who receive JYNNEOS might experience myopericarditis.
<u>https://www.fda.gov/media/75792/download</u>

Monkeypox Vaccines in Kentucky

Distribution of the monkeypox vaccine remains low to Kentucky due to the low number of cases of monkeypox in the state. The Kentucky Department for Public Health shares and appreciates the need and concern for expanded access. We are working to increase vaccination locations as quickly as supplies allow.

Who is eligible for MPox vaccine in Kentucky?

Who can get vaccinated?

- Anyone who reports any of the following:
 - Close contact to someone with known or suspected monkeypox virus (direct skin-toskin contact or other close contact)
 - Diagnosis of HIV
 - Diagnosis of chlamydia, gonorrhea or early syphilis, within the prior 12 months.
 - Receiving medications to prevent HIV infection (PrEP)
 - Exchanging sex for money or nonmonetary items
 - Attending an event/venue where there was a high risk of exposure to an individual(s) with monkeypox virus through skin-to-skin or sexual contact
- Gay, bisexual or other men who have sex with men or transgender people who are sexually active
- · Laboratory workers who routinely perform monkeypox or orthopox virus testing
- Healthcare professionals who have had high-risk occupational exposure without using
 recommended personal protective equipment in the past 14 days
- Individuals who, on a case-by-case basis, are determined at high risk for contracting monkeypox

This guidance will be updated as eligibility changes.

If you think you may be eligible to receive a monkeypox vaccine, please reach out to the following locations to schedule an appointment: <u>Monkeypox</u> <u>Vaccination Locations</u>.

August 26, 2022

KDPHMonkeypox.ky.gov

General Public Monkeypox Hotline: (844)520-6670

Jynneos (modified vaccinia Ankara) monkeypox & smallpox vaccine

- Live, replication deficient, FDA approved for smallpox and monkeypox
- 2-dose series
- Booster given every 2-10 years for those at risk of continued exposure (depends on virus researcher is working with)
 - Full protection thought to occur 2 weeks after 2nd dose
 - Duration of immunity after 2-dose series is unknown
- Efficacy inferred from immunogenicity data + animal studies

CDC Guidance- Jynneos August 2022

Table 2. Vaccination Schedule and Dosing Regimens for JYNNEOS Vaccine

JYNNEOS vaccine regimen	Route of administration	Injection volume	Recommended number of doses	Recommended interval between 1st and 2nd dose
Alternative regimen				
People age ≥18 years	ID	0.1 mL	2	28 days
Standard regimen				
People age <18 years	Subcut	0.5 mL	2	28 days
People of any age who have a history of developing keloid scars	Subcut	0.5 mL	2	28 days

https://www.cdc.gov/poxvirus/monkeypox/interim-considerations/jynneos-vaccine.html

Expanded Vaccination With Jynneos

- Intradermal evidence predominantly based on one study showing non-inferiority of ID –v- SubQ administration (2015)*
- Intradermal vaccination studies (not Jynneos) showed similar efficacy in PLWH
- Intradermal Jynneos can have prolonged skin color change, itching, and induration (up to 6 months)
- Deltoid & subscapular regions can be used for privacy purposes

https://www.sciencedirect.com/science/article/pii/S0264410X15008762?via%3Dihu https://www.cdc.gov/poxvirus/monkeypox/interim-considerations/jynneos-vaccine.html

* Two other small studies also support ID administration

Co-administration with other vaccines/medications

- Jynneos can safely be administered with all routine vaccines
- Myopericarditis seen in 5.7/1000 persons who receive ACAM 2000
 - Mechanism unknown

1.

- Myocarditis seen very rarely after COVID-19 vaccination
- Bottom line:
 - We are in an outbreak of both viruses
 - Benefits >> Risks which are mainly theoretical
- Give MPox, COVID-19 booster, and don't forget flu!
 - https://www.cdc.gov/mmwr/volumes/71/wr/mm7122e1.htm
 - 2. https://www.cdc.gov/poxvirus/monkeypox/interim-considerations/Jynneos® -vaccine.html
 - 3. https://jamanetwork.com/journals/jama/fullarticle/2788346

Unvaccinated people had:

14 times the risk of monkeypox disease compared to people who were vaccinated*

Rates of Monkeypox Cases by 1st Dose Vaccination Status

July 31, 2022 - September 3, 2022 (32 U.S. jurisdictions)

Data Table						-
		31-Jul-22	7-Aug-22	14-Aug-22	21-Aug-22	1
	 Unvaccinated 	282	312	268	292	
	Vaccinated*	17	42	24	14	-

What can we do?

- 1. Collaboration
 - Work together to educate community, and to test, treat, and vaccinate
- 2. Testing
 - Counsel patients at risk about Mpox
 - Test any new lesions
- Use our knowledge, network, and inroads with vulnerable communities to improve vaccine equity
- Refer patients for research studies (ACTG) to gain better data → help more for the next outbreak

Impact of Monkeypox Outbreak on Select Behaviors

Updated August 22, 2022 Print

Gay, bisexual, and other men who have sex with men are taking steps to protect themselves and their partners from monkeypox.

nunity, and to test, treat, and

In an online survey of gay, bisexual, and other men who have sex with men conducted during August 5-15, 2022, respondents reported changing their behavior because of the monkeypox outbreak: 48% reported reducing their number of sex partners, 50% reported reducing one-time sexual encounters, and 50% reported reducing sex with partners met on dating apps or at sex venues.

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Test any new lesions

- Use our knowledge, network, and inroads with vulnerable communities to improve vaccine equity
- Refer patients for research studies (ACTG) to gain better data → help more for the next outbreak

Impact of Monkeypox Outbreak on Select Behaviors

Updated August 22, 2022 Print

vulnerable communities to improve vaccine equity

4. Refer patients for research studies (ACTG) to gain better data \rightarrow help more for the next outbreak

Impact of Monkeypox Outbreak on Select Behaviors

Updated August 22, 2022 Print

- Does natural infection induce durable immunity?
- Do we need to vaccinate after natural infection (related to above)?
- Why is it localized and not disseminated?
- Does smallpox vaccine in childhood protect against Mpox infection?
- Will Mpox become endemic?

Q&A

AETC Program National Centers and National HIV Curriculum

AETC AIDS Education & Training Center Program Southeast

• National Coordinating Resource Center serves as the central web based repository for AETC Program training and capacity building resources; its website includes a free virtual library with training and technical assistance materials, a program directory, and a calendar of trainings and other events. Learn more: https://aidsetc.org

 National Clinician Consultation Center provides free, peer to peer, expert advice for health professionals on HIV prevention, care, and treatment and related topics. Learn more: https://nccc.ucsf.edu

• National HIV Curriculum provides ongoing, up to date HIV training and information for health professionals through a free, web based curriculum; also provides free CME credits, CNE contact hours, CE contact hours, and maintenance of certification credits. Learn more: <u>www.hiv.uw.edu</u>