Monkeypox Treatment ID Providers CUIMC Training

Updated: 7/29/2022



- Supportive care ٠
 - Most patients fully recover
 - Symptomatic treatment
- Antiviral medications ٠
 - Cidofovoir
 - Brincidofovir
 - Trifluridine (eye disease)
 - Tecovirimat (EA-IND)
- Vaccine immune globulin (IND) ٠
 - Consider for patients ineligible for vaccination for PEP

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- Proctitis
 - Stool softeners
 - Lidocaine gel
 - Anti-inflammatory (if not bleeding)
 - Sitz Baths
 - Avoid opioids if possible

- Genital Lesions
 - Frequent bathing
 - Keep it dry
 - Change clothes
 frequently
- Oropharyngeal lesions
 - Magic mouthwash







- Supportive care
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Severe disease

- Sepsis
 - Hospitalization
 - Evidence of viremia
 - Lesion location/type (e.g areas at risk of scarring or stricture)
 - Eye
 - Mouth/Pharynx
 - Rectum
 - Urethra
 - Vagina

- Illness complication
 - Secondary bacterial infection
 - · Proctitis with tenesmus
 - Uncontrolled pain
 - Rectal bleeding
 - Gastroenteritis
 - Pneumonia
 - Encephalitis

- At high risk for severe disease
 - HIV with high VL or low CD4
 - Severe immunocompromise
 - Age < 8
 - Pregnant/breastfeeding
 - Significant active exfoliative dermatologic conditions
 - Increased risk for stricture/fisulta (e.g IBD)







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- Supportive care
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Russo AT, Grosenbach DW, Chinsangaram J, Honeychurch KM, Long PG, Lovejoy C, Maiti B, Meara I, Hruby DE. An overview of tecovirimat for smallpox treatment and expanded anti-orthopoxvirus applications expert Rev Anti Infect The 2020/Mar; 19(3):331-344. doi: 10.1080/14787210.2020-1819791. Endb 2020 Sep 15, PMID: 3288-158.

Infectious Diseases





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13

NH12

Unit 🍌

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- Supportive care •
 - Most patients fully recover
 - Symptomatic treatment
- Antiviral medications •
 - Cidofovoir

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- Brincidofovir
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Russo AT, Grosenbach DW, Chinsangaram J, Honeychurch KM, Long PG, Lovejoy C, Maiti B, Meara I, Hruby DE. An overview of tecovirimat for smallpox treatment and expanded anti-orthopoxvirus applications spert Rev Anti Infect Ther 2021/Mar; 19(3):331-344. doi 10.1080/14787210.2020.1819791. Epub 2020 Sep 15. PMID: 3288 RESEARCH

Infectious Diseases

Unit

Tecovirimat

The NEW ENGLAND JOURNAL of MEDIC	NE						
ORIGINAL ARTICLE							
Oral Tecovirimat for the Trea of Smallpox Douglas W. Grosenbach, Ph.D., Kady Honeychurch, Ph.D., Jarasvech Chinsangaram, D.V.M., Ph.D., Annie Frimm, B.S., Candace Lovejoy, B.S., Ingrid Meara, M.S., Paul Li	Eric A. Rose, M.D., Biswajit Maiti, Ph.D.,						
and Dennis E. Hruby, Ph.D.	Table 3. Adverse Events That Occurred or Wors	ened during Receipt	of Tecovirim	at or Placebo in the C	Overall Sun	nmary Safety Popula	tion.
	Type of Event*	Placebo (N = 90)		Tecovirimat (N=359)		Total (N = 449)	
		No. of Participants (%)	No. of Events	No. of Participants (%)	No. of Events	No. of Participants (%)	No. Even
	Any event	30 (33.3)	68	134 (37.3)	318	164 (36.5)	386
	Event related to the trial agent	15 (16.7)	32	71 (19.8)	176	86 (19.2)	208
			-				

68 134 (37.3) 164 (36.5) 318 32 71 (19.8) 176 86 (19.2) Event leading to discontinuation of trial agent 6 (1.7) 2 (2.2) 3 16 8 (1.8) Serious events and events leading to death 0 1 (0.3) † 0 1 1 (0.2)

> Grosenbach DW, Honeychurch K, Rose EA, Chinsangaram J, Frimm A, Maiti B, Lovejoy C, Meara I, Long P, Hruby DE. Oral Tecovirimat for the Treatment of Smallpox. N Engl J Med. 2018 Jul 5;379(1):44-53. doi: 0.1056/NEJMoa1705688 PMID.29972742; PMCID: PMC608658

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No. of

Events

386

208

19

1

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Tecovirimat

Clinical features and management of human monkeypox: a retrospective observational study in the UK

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Hugh Adler, Susan Gould, Paul Hine, Luke B Snell, Waison Wong, Catherine F Houlihan, Jane C Osborne, Tommy Rampling, Mike BJ Beadsworth, Christopher JA Duncan, Jake Dunning, Tom E Fletcher, Ewan R Hunter, Michael Jacobs, Saye H Khoo, William Newsholme, David Porter, Robert J Porter, Libuše Ratcliffe, Matthias L Schmid, Malcolm G Semple, Anne J Tunbridge, Tom Wingfield*, Nicholas M Price* on behalf of the NHS England High Consequence Infectious Diseases (Airborne) Network†

Summary

Background Cases of human monkeypox are rarely seen outside of west and central Africa. There are few data regarding viral kinetics or the duration of viral shedding and no licensed treatments. Two oral drugs, brincidofovir and tecovirimat, have been approved for treatment of smallpox and have demonstrated efficacy against monkeypox in animals. Our aim was to describe the longitudinal clinical course of monkeypox in a high-income setting, coupled with viral dynamics, and any adverse events related to novel antiviral therapies.

Methods In this retrospective observational study, we report the clinical features, longitudinal virological findings, and response to off-label antivirals in seven patients with monkeypox who were diagnosed in the UK between 2018 and 2021, identified through retrospective case-note review. This study included all patients who were managed in dedicated high consequence infectious diseases (HCID) centres in Liverpool, London, and Newcastle, coordinated via a national HCID network.

Findings We reviewed all cases since the inception of the HCID (airborne) network between Aug 15, 2018, and Sept 10, 2021, identifying seven patients. Of the seven patients, four were men and three were women. Three acquired monkeypox in the UK: one patient was a health-care worker who acquired the virus nosocomially, and one patient who acquired the virus abroad transmitted it to an adult and child within their household cluster. Notable disease features included viraemia, prolonged monkeypox virus DNA detection in upper respiratory tract swabs, reactive low mood, and one patient had a monkeypox virus PCR-positive deep tissue abscess. Five patients spent more than 3 weeks (range 22–39 days) in isolation due to prolonged PCR positivity. Three patients were treated with brincidofovir (200 mg once a week orally), all of whom developed elevated liver enzymes resulting in cessation of therapy. One patient was treated with tecovirimat (600 mg twice daily for 2 weeks orally), experienced no adverse effects, and had a shorter duration of viral shedding and illness (10 days hospitalisation) compared with the other six patients. One patient experienced a mild relapse 6 weeks after hospital discharge.

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yed May 26, 2022 *Contributed equally tMembers are listed in the appendix and Tropical and Infectious Disease Unit, Liverpool University Hospitals NHS Foundation are the second to the second

been corrected. The corrected

version first appeared at

thelancet.com/infection on

ed Hospitals NHS Foundation Trust, Liverpool, UK See (HAdler PhD, Scould MRCP, PHine MRCP, MB Beadsworth MD, T E Fletcher PhD, Yir Prof S H Khoo MD, UK Latcliffe MRCP, TWingfield PhD): Department of Clinical Sciences, Liverpool School of Tropical Medicine, Liverpool, UK (HAdler, S Gould, PHine, MB Beadsworth, • One patient was treated with tecovirimat and experienced no adverse effects, and had a shorter duration of viral shedding and illness



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Current Indications for Treatment - Severe Disease

Severe disease

- Sepsis
- Hospitalization
- Evidence of viremia
- Lesion location/type (e.g areas at risk of scarring or stricture)
 - Eye
 - Mouth/Pharynx

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- Rectum
- Urethra
- Vagina

Illness complication

- Secondary bacterial infection
- Proctitis with tenesmus

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- Uncontrolled pain
- Rectal bleeding
- Gastroenteritis
- Pneumonia
- Encephalitis

- At high risk for severe disease
 - HIV with high VL or low CD4
 - Severe
 immunocompromise
 - Age < 8

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- Pregnant/breastfeeding
- Significant active exfoliative dermatologic conditions
- Increased risk for stricture/fisulta (e.g IBD)



Current Treatment Process for Monkeypox

- Treatment only for indications
- Note = Case Report Form For CDC
- Needs to include
 - CDC Required Questions
 - Exam
 - Labs
 - Photos
- Please complete all fields

- Each patient needs a minimum of 3 notes
- Treatment start

 MPXTREATMENTSTART
- On Treatment
 - MPXTREATMENTFU
- Off Treatment
 - MPXTREATMENTFINAL



Outpatient Treatment Pathway



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Additional Management By Treatment Team





MPX Treatment Initiation

1.Informed Consent

- 2. Order medication from research pharmacy
 - Need weight
- 3. Exam with images
- 4.Labs including treatment labs and complete STI testing
- 5. Finish MPXTreatmentStart note
- 6.Schedule follow-up

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Demographics and Eligibility

Required by CDC:

Sex assigned at birth: *** (Choices: M, F) Gender identity: *** (Choices, M, F, Transgender male, Transgender female, other, unknown) Race: *** (Choices: AA//Black, Asian, White, American Indian or Alaskan Native, Native Hawaiaan or Other Pacific Islander, Other) Ethnicity: *** (Choices Hispanic/Not Hispanic)

CDC Eligibility criteria:

Does the patient have laboratory confirmed orthopoxvirus infection? : {Yes No:20284} Has the orthopoxvirus species been confirmed: No

Indication for treatment: ***

(Choices: Risk of severe outcome due to immunosuppression, Lesions in sensitive anatomical areas (please list area), pain (please list location of pain), other (please specify details)

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This evaluation is being completed in the *** setting Choices:inpatient, inpatient-icu, outpatient If inpatient, date of admission: ***

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Willing to sign informed consent: Yes
 Accepts Tecovirimat treatment: Yes
 Known allergy to tecovirimat or excipients of tecovirimat: No
 For IV only: Cr Cl < 30ml/min: No

- Sex/Gender/Race/Ethnicity
 - Please choose from CDC choices
- Eligibility criteria
 - If choose yes document whether the patient has a positive test or this is presumed infection
 - Indication for treatment
 - Setting of treatment (inpatient, ICU, outpatient)
 - Eligibility criteria is "pre-filled" but should review







Monkeypox Specific History

Example HPI

HPI

(including day by day timeline from prodrome to present)

Monkeypox Specific History

Date of illness onset: *** Date of exposure if known): *** Date of smallpox vaccination (and type): If ACAM 2000 was there a documented vaccine take:

Presenting Signs and Symptoms:

Number of lesions (<10, 10-100, >100): *** Size of maximal lesion (in mm): *** Percent of body affected: *** (Using rule of 9's with any part with at least one lesion counting)

Risk Factors:

Immunocompromised: *** Immunocompromising medication: *** Travel History:***

HPI

(including day by day timeline from prodrome to present)

First symptoms: 6/18 - 6/20, felt like he had some allergy symptoms took allergy medications and felt better (rapid COVID negative)

First lesion: Friday 6/25 just 3 skin lesions at this time (dorsal shaft of penis, inguinal, suprapubic, R inguinal LAD)

Monday 6/27 flu like symptoms, body aches, joint symptoms, SOB, swabs done and 6/30 testing returned positive. Noticed some early irritation with urination.

6/28 102.1, lasted about 48 hours, worst pain, discharge, blood tinged

6/29 felt better, fatigue, brain fog for next couple of days

6/30 test returned positive, spoke with contact tracer

7/1 – 3 lesions in groin started to become really inflamed, used mupirocin (did not help may have spread viral particles), developed a macular rash in groin area, spread to chest, arms, back, buttocks and still there

7/2 – 7/3 – New lesions on arms, near original three lesions, possibly on forehead and nose, continued to have extremely painful discharge

7/4 - Referred from DOH for treatment, slight improvement, rash less intense then previous, maybe receded a little bit, but R antecubital is still pretty bad and most significant issue is pain with urination.

Patient presents today for TPOXX evaluation



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Updated in EPIC and Mark Reviewed Basic History Past Medical History @PMH@ Chart Review Immunizations Synopsis 🚱 Visit Data Screenings 🔗 Plan 😭 Wrap-Up inver ★ 34 (← →) Medication History 7/18/2022 visit with Jason E Zucker, MD for FOLLOW UP CUIMC ? 2 @CMED@ Surgical History @PSH@ 7/18/2022 visit with Jason E Zucker, O for FOLLOW UP ? 2 Immunization History Visit Info Vital Signs Care Everywhere / Allergies Verify Rx Benefits Medication Answer Qnrs SOGI History Goals @IMMHIST@ Screenings **Qnr Series** Family History @FAMHX@ History **† ↓** Social History Medical History & 7/12/2022 Vark as Reviewed @SOCH@ Add medical history Add Pertinent Negative DxReference Gender of sex partners: *** Quick Entry ¥ Top/Bottom/Verse: *** Expand for list of problems that can be quickly added to the medical history Partners in past month: *** Past Medical History ≈ Condoms (% of time): *** Diagnosis Date Age Comment Src. PL No pertinent past medical history ÷ Allergies Surgical History Never Vark as Reviewed @ALLERGY@

Add surgical history

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Division of Infectious Diseases

🛉 Add 🛉 Pertinent Negative





Basic History

Past Medical History @PMH@

Medication History @CMED@

Surgical History @PSH@

Immunization History @IMMHIST@

Family History @FAMHX@

Social History @SOCH@

Gender of sex partners: *** Top/Bottom/Verse: *** Partners in past month: *** Condoms (% of time): ***

Allergies @ALLERGY@

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Updated in EPIC and Mark Reviewed

• Refresh once it's updated





Basic History



Lesion photos in Epic (Y/N): {Yes No:20284} Images inserted at bottom of the note: {Yes No:20284}

Add X's For Distribution of Lesions

Example:



Only need to use Note Writer to document lesions if patient refuses photos





Only need to use Note Writer to document lesions if patient refuses photos



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Local Labs

Laboratory BMP:

@BRIEFLAB(NA,CL,BUN,K,CO2,CREATININE,GLUs)@

CBC:

@BRIEFLAB(WBC,RBC,HGB,CRIT,MCV,MCH,MCHC,RDW,PLT,MPV,NEUTP,LYMPH P,MONOP,EOSP,BASOP,NEUT,LYMPH,MONO,EOS,BASO,RETIC,MANDIFF,LUC,LU CP)@

LFTs:

@BRIEFLAB(TP,SGPT,SGOT,ALK,ALB,DBILI,TBILI)@

UA

@BRIEFLAB(UCOLOR,UAPPEAR,SGUR,PHUR,PROTUR,GLUUR,UKETONE,UBILI,UBLOOD, UROBILINOGEN,NIUR,LEUEU,SQUAMOUSEC,SQUAMOUSECH,SPERMUR,WBCUR,WBCUR H,RBCUR,RBCURH,UREC,UTEC,TRICHOMONAS,BACTUR,BACTERIAUR)@

STI Testing:

(If previously completed please document date and results) - HIV -

- Hep C -
- 3 site GC/CT -
- RPR -
- HSV/VZV -
- Bacterial Culture -

 Won't be complete until hours later or next day, may need to addend and refresh your note to update

Summary:



 Ensure that complete STI testing is performed recently due to high rates of co-infection

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CDC Labs

CDC Labs:

Immunochemistry collected: {Yes (Default)/No:51158} Lesion swab collected: {Yes (Default)/No:51158} Lesion swab collected from: *** When you communicate with the MPX Trt Team we will bring you a kit with the tubes needed and swabs



Plan

- - Document
 - TPOXX
 - Superinfection/Antibiotics
 - Labs performed
 - Supportive care provided
 - Counseling provided
 - Follow-up



Clinical Images Taken at Today's Visit:

Clinical Images Taken at Today's Visit:



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This Encou	unter All In	nages					Selected images:

• Can select all and insert



Visit type: **** (In person or Video)

This is an infectious disease consult for @PATPREFNAME@, who is a @AGE@ @GENDERID@ on therapy for Monkeypox. Document visit type



HPI

HPI

New lesions after 48 hours of therapy? {YES/NO:12384:::1} If yes please includes dates and locations:

Signs/symptoms first started to improve on treatment day #

Describe the improvements if any:

CDC Treatment Questions:

Treatment drug: Tecoviramat Treatment dose: 600mg Treatment frequency: ***

Day/Time first dose taken: *** Most recent dose taken (day/time) *** Number of days on therapy: *** Number of doses taken so far: ***

Did patient consume a meal containing about 600 calories and 25 grams of fat when taking most recent dose of tecovirimat? {YES/NO:12384:::1} - Was oral tecovirimat given via nasogastric (NG) tube?: No

Has the patient missed any doses? {YES/NO:12384:::1} Has the patient had any serious adverse events? {YES/NO:12384:::1}

Has the patient been hospitalized since starting Tecovirimat? {YES/NO:12384:::1}

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ROS and Exam

Vital Signs: @VS@							
@PHYSEXAMBYAGE@							
Distribution o Left scalp throat trunk anus Other	f Lesions: face eye abdomen thight	mouth hand buttock calf	oral mucosa arm genitals foot				
Right scalp throat trunk anus Other	face eye abdomen thight	mouth hand buttock calf	oral mucosa arm genitals foot				
Lesion photo:	s in Epic: {YES	/NO:12384:::1}					

Monkeypox Specific Exam

Approximate number of lesions: *** Size of maximal lesion (in mm): *** Percent of body affected: *** (Using rule of 9's with any part with at least one lesion counting)

Has there been a change in the size or stage of healing of lesions (describe)? *** Has there been a change in other clinical signs/symptoms (describe)? ***

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Local Labs

Laboratory

BMP:

@BRIEFLAB(NA,CL,BUN,K,CO2,CREATININE,GLUs)@

CBC:

@BRIEFLAB(WBC,RBC,HGB,CRIT,MCV,MCH,MCHC,RDW,PLT,MPV,NEUTP,LYMPH P,MONOP,EOSP,BASOP,NEUT,LYMPH,MONO,EOS,BASO,RETIC,MANDIFF,LUC,LU CP)@

LFTs:

@BRIEFLAB(TP,SGPT,SGOT,ALK,ALB,DBILI,TBILI)@

UA

@BRIEFLAB(UCOLOR,UAPPEAR,SGUR,PHUR,PROTUR,GLUUR,UKETONE,UBILI,UBLOOD, UROBILINOGEN,NIUR,LEUEU,SQUAMOUSEC,SQUAMOUSECH,SPERMUR,WBCUR,WBCUR H,RBCUR,RBCURH,UREC,UTEC,TRICHOMONAS,BACTUR,BACTERIAUR)@

STI Testing:

- HIV -
- Hep C -
- 3 site GC/CT -
- RPR -
- HSV/VZV -
- Culture -

Only send what is clinically indicated

 Won't be complete until hours later or next day, may need to addend and refresh your note to update

Summary:



 Ensure that complete STI testing is performed recently due to high rates of coinfection

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CDC Labs

CDC Labs (For in-person visits only):

Immunochemistry collected: {Yes (Default)/No:51158} PK collected: {Yes (Default)/No:51158} Lesion swab collected: {Yes (Default)/No:51158} Where was lesions swab sent from:

- Immunochemistry is a large tiger top SST 8.5ml tube you can get from the research unit
- PK (EDTA 6mL) Goes on ice
- Swabs are sent in dry blue top tubes (like we did when we started testing)
 - Please document location



Plan

- - Document
 - TPOXX
 - Superinfection/Antibiotics
 - Labs performed
 - Supportive care provided
 - Counseling provided
 - Follow-up
 - CDC Outcomes

CDC Monkeypox Outcomes:

All lesions crusted and healed with new layer of skin? Evidence of scarring or depigmentation? Strictures in the genital region? Overall outcome: (Please choose from: 1) Recovered from orthopoxvirus infection without sequelae 2) Recovered from orthopoxvirus infection with sequelae (please describe) 3) Not recovered from orthopoxvirus infection (e.g., persistence of residual lesions)

4) Death (please provide details)



Clinical Images Taken at Today's Visit:

Clinical Images Taken at Today's Visit:





Can select all and insert



Contributors

Monkeypox Treatment Team

- Magda Sobieszczyk
- Jason Zucker
- Brett Gray
- Arianna Pazmino
- Mascha Elskamp
- Orlando Rosario
- Jacob McClean
- Clare Delaurentis
- Michelle Chang
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HP6/VC4

- Matt Scherer
- Peter Gordon
- Susan Olender
- Caroline Carnevale
- Maria Espinal

IP&C

- Yoko Furuya
- Tina Wang

Providers

 All of the providers who have seen and treated MPX patients (more than I can list here!)







